SEP 27 1920

Vol. X. OCTOBER, 1920 No. 10

AMERICAN JOURNAL OF PUBLIC HEALTH

THE JOURNAL *of the* AMERICAN PUBLIC HEALTH ASSOCIATION

IN THIS ISSUE

IMPORTANT PAPERS FROM SAN FRANCISCO MEETING

BY

Rude, Ravenel, Schevitz, Cramp and Crum

Published monthly on the 20th by the American Public Health Association at
124 W. Polk Street, Chicago, Ill.

ADDRESS EDITORIAL MATTER TO
169 MASSACHUSETTS AVE.
BOSTON, MASS.

Subscription Price, $4.00 per Year. Single Copies, 50 cents.
A. P. H. A. Membership, including Subscription, $5.00 per year.

Entered as second class matter January 20, 1920, at the postoffice at Chicago, Illinois, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized February 28, 1920.

Laboratory Apparatus and Supplies

COMPLETE EQUIPMENT FOR BACTERIOLOGICAL AND PATHOLOGICAL LABORATORIES

Microscopes
Microscope Lamps
Mechanical Stages
Dark Field Illuminators
Haemacytometers
Stage Micrometers
Eye Piece Micrometers
Micro Slides
Micro Cover Glasses
Hang Drop Slides
Microscopical Stains (Dry and solution)
Lens Paper
Cedar Oil
Xylol
Nichrome and Platinum Loops

Centrifuges (2-tube, 4-tube and 8-tube combination heads.)
Centrifuge Tubes
Babcock Bottles
Babcock Centrifuges
Sputum Shakers
Pipette Boxes
Petri Dish Boxes
Wassermann Racks
Water Baths
Autoclaves
Incubators
Hot Air Sterilizers
Drying Ovens
Test Tube Baskets
Test Tube Racks

Petri Dishes
Culture Tubes
Chemical Tubes
Flasks (Culture, filter, Erlenmeyer, boiling, volumetric.)
Cylinders
Graduates
Pipettes (Plain and graduated)
Porcelain Ware
Burettes
Burette Stands, Clamps, etc.
Filter Paper
Bacto Culture Media

Chemicals and Reagents

The above is a list of some of the articles which we carry in stock ready for immediate shipment.

ITEMIZED QUOTATIONS GLADLY RENDERED UPON REQUEST

We specialize in equipment for Board of Health Laboratories and solicit your request for information along these lines.

E. F. MAHADY COMPANY

671 Boylston Street BOSTON, MASS.

American Journal of Public Health
Official Monthly Publication of the American Public Health Association
Publication office: 124 W. Polk Street, Chicago, Ill.
Editorial office: 169 Massachusetts Ave., Boston, Mass.

Subscription price $4 per year. American Public Health Association membership, including subscription, $5 per year. Subscriptions and memberships may be sent to the A. P. H. A., 169 Massachusetts Ave., Boston, Mass.

Vol. X OCTOBER, 1920 No. 10

ENDEMIC DISEASES VS. ACUTE EPIDEMICS

MAZŸCK P. RAVENEL, M.D.
Professor Preventive Medicine, University of Missouri
Columbia, Mo.

Read before Public Health Administration Section, American Public Health Association, at San Francisco, Cal., September 15, 1920.

Epidemics are cared for through the incident terror of the people, and there is always money to fight them and investigate, but the far more important insidious endemics attract little interest or popular support. Attention to reduction in morbidity, rather than mortality, rates is the "stitch in time" plea of Dr. Ravenel.

EPIDEMIC diseases break upon a community often with little warning, strike terror into the community, demoralize business, reap their harvest of victims and pass on, leaving physicians, nurses and the general public exhausted as well as somewhat dumbfounded by what has happened. Perhaps a few chronic cases may be left behind, some other diseases may be aggravated, and some may carry their scars for years or even for life, but all of these are greatly in the minority. The vast majority of those stricken recover promptly and in a few weeks or months, at most, have returned fully to accustomed health and vigor. This was the history of the worst and most extensive epidemic that has ever visited this country, and one of the worst recorded in history for the whole world—the epidemic of influenza in 1918-1919. We have scarcely yet recovered our equilibrium and scientifically are still staggering under the impact of the blow, yet it must be admitted that in epidemic form the disease has accomplished its mission and has gone, leaving little behind physically except the graves of its victims to remind us of its visit. In spite of its appalling death-rate business was only temporarily disturbed, and those who survived speedily regained their normal health and strength. The scars left on the nation are the graves of the young who might otherwise have lived to a useful citizenship. The nation lost totally a deplorably large number of its citizens, but the loss ceased with the epidemic, and there are no maimed and wounded to be cared for, no burden to be carried for years to come.

Such is the history of epidemics generally—they come, rage and go on their way, leaving us little the worse except for the loss of life.

Entirely different is the picture presented by endemic diseases—a low death-rate as a rule, but a high sick-rate, a large proportion of the community more or less incapacitated for mental or physical work day after day, week after week, month after month and year after year, business and production slowed, vigor and manhood sapped, character and courage lost, progress stopped, districts depopulated, and as history shows, perhaps an entire people may fall before more vigorous enemies and disappear.

Two great civilizations of the past, both of which left treasures of literature, poetry and art, which have never been surpassed and seldom equalled, have disappeared. One had its home in Greece, the other in Italy. It seems fairly certain that endemic disease, especially malaria, played a large part in the decline and fall of these ancient peoples, sapping their vitality, destroying their health and changing their character. A study of the facts we have been able to collect teaches an interesting and useful lesson.

Greece. Prior to B. C. 500, only two references to malaria—both of which are doubtful—are known in Greek literature. The writings of Hippocrates, as well as those of lay authors, prove that in 400 B. C. malaria was endemic in many parts of the Greek world, the types are clearly described, and the effects on the people noted. Malarial cachexia is well described—its victims are said to have large spleens but thin faces and shoulders; fatal dropsies are common; the birth-rate is injuriously affected by the physical condition of the women; aging is premature and the span of life is short. The inhabitants of malarial districts are described as being short, stout, dark-haired, dark-colored and bilious, lacking in courage as well as endurance. The statement that people in malarial districts were dark-haired may indicate that the fair northern element to which the Greeks seem to have owed their best qualities had disappeared or was disappearing. It seems probable that malaria was known in the medical schools even before Hippocrates, but this does not imply that it was prevalent in Greece itself, since it may have been observed in Asia Minor. Passages in Herodotus indicate that the Ionian Greeks had become infected by the latter half of the sixth century B. C. We are told that Dionysius attempted to train the crews of the fleet collected to resist the Persians. For a short time they persisted in the drills but soon became exhausted by the unusual exertion and heat, and refused to continue. Many became ill and many more were expecting to fall ill. While there is no certain evidence that malaria was the illness brought on by exhaustion and heat in this case, the story accords with what might have been expected among malarial carriers—the attack would be precipitated.

From both lay and medical writers we have abundant evidence that malaria was widespread in Greece from 400 B. C. and that its effects were pernicious. There is no positive evidence to prove that it did not exist before, or that it was introduced about this time. What evidence there is on these points is negative. That it became markedly more prevalent about this time seems fairly clear. A statue of "Health-Athena" was erected in the Acropolis at Athens between 429 and 400 B. C. The worship of the health goddess is usually referred to as connected with plague, but there is as good reason to believe that it was prompted by malaria. The worship of Æsculapius, the god of healing, was introduced into Athens from Epidaurus about the close of the fifth century. His festivals were in March and September, respectively, the beginning of the malarial season in Greece and its height. All evidence points to the increase of ill

health during this period. Medical history shows a steady decline from the rational methods of treatment introduced by Hippocrates and an increasing belief in dream-oracles, charms and other superstitions, a mixture of religion, magic and empiricism.

Perhaps no other disease would tend to foster such practices as much as malaria. Quinine was not known, and no specific cure of the disease was possible. Spontaneous cure is known to occur in all types of malaria except the pernicious, and the chief factors in such cures are diet, rest and change. It is then easy to understand how such cures were attributed to supernatural agencies, with the consequent increase of faith in such procedures, just as at the present day we see the origin and growth of medical cults and practices founded on the fallacy "post hoc ergo propter hoc," and the adoption of these cults by otherwise intelligent persons.

The blighting effects of malaria on energy and character were recognized by the early Greeks. The word melancholy, meaning black bile, occurs soon after the Greek words for malarial fever became common. Melancholia was the disease caused by black bile, to which quartan fevers were attributed by many Greek physicians, and Galen stated that large spleens were due to an excess of the "melancholy humor." Certainly all melancholia was not malarial in origin, but there can be little question that malaria was the chief cause of the condition.

There is no doubt that contemporaneously with the increase in malaria, as shown in both medical and lay writings, Greek character began to change for the worse—decay set in. Their brilliancy left them, initiative was lost, vacillation and indecision, weakness, cowardly depression and cruelty marked their conduct. The philosophy of even their best writers became pessimistic, and their former lofty patriotism was lost.

It would be extreme to attribute to the spread of malaria alone the loss of physical excellence, mental and moral strength, and the many other fine characteristics of the ancient Greeks, yet it is possible that malaria might have been the fundamental cause. Other factors were certainly operative—chiefly prolonged and disastrous wars, perhaps made unsuccessful by the changes in Greek character. It is true that the most prolonged of these wars were civil, but the bad effects certainly extended beyond the states engaged. The flower of the young manhood was withdrawn from productive pursuits and many fell in battle. Agriculture must have come almost to a standstill, and with it drainage of the fields, which would become swampy and fertile breeding places for mosquitoes.

There is strong evidence that malaria occurred in epidemics and became endemic, though other epidemics are recorded, notably the "plague," which smote Athens after the Peloponnesian war.

With the decline of agriculture and increase in malaria there doubtless came the emigration of the more intelligent and energetic seeking healthier homes, and the degradation of those remaining, an effect of malaria recorded by Hippocrates. It is impossible to differentiate cause from effect with accuracy. A vicious circle was no doubt formed. In Greece as in Italy malaria increased as prosperity declined and prosperity declined as malaria increased. Pausanius, A. D. 180, states that the weakness of the Greeks in the third century B. C. was due to disease, and attributes the power of the Achæan League partly to the relative freedom from disease of its members. Plutarch says that the Greeks of his day were obliged to avoid fatigue lest an attack of fever should be brought on. "That malaria precipitated the decline can hardly be doubted; that it was the determining factor in most cases is scarcely less certain."

There is some authority as well as

good reason to believe that malaria played a part in the downfall of Sybaris, one of the most wealthy cities of ancient times and so populous that we are told they put an army of 300,000 men in the field. Their name has come down to us a synonym for love of ease and pleasure, yet the great wealth and influence of these people prove that they had energy and determination at one time. Their reputation for love of ease and effeminacy may have come from the precautions necessary to preserve health. The city was located in a hollow at the junction of the Crathis and Sybaris rivers, where it was hot at midday and cold at morning and evening. From this probably arose the saying that he who did not wish to die young must avoid seeing the sun when it rose or when it set—advice which might well be given in a malarial district. Probably here as elsewhere, malaria was only one of several factors in the decay of the people. The city was finally conquered by the inhabitants of Croton, who though vastly inferior in numbers to the Sybarites, turned the course of the Crathis to inundate the city, the ancient site of which is now a malarious swamp. It is of interest to note that ancient writers speak of Croton as being proverbial for its healthfulness, and this probably accounted in part at least, for their conquest over superior numbers.

Italy. The history of Italy is not so conclusive, though we have many remarkable facts which have not yet been explained in any way, and are satisfactorily accounted for by the increasing prevalence of an endemic disease weakening the people physically and morally. Without entering into controversial points as to the origin and identity of the Etruscans, it may be stated with certainty that they came from abroad ages before Rome was founded, and through superior skill and energy subdued the various people inhabiting the land, possessed themselves of the larger part of the Italian peninsula, remained dominant for many centuries, built populous cities fortified by mighty walls, attained a high degree of civilization, second only to that of the Greeks, developed navigation and commerce to an extent that made them for centuries "lords of the sea," became eminent in military tactics, agriculture, medicine, arts and other sciences, especially astronomy.

"Etruria was of old densely populated, not only in those parts which are still inhabitated, but also, as is proved by remains of cities and cemeteries, in tracts now desolated by malaria and relapsed into the desert; and what is now the fen or the jungle, the haunt of the wild-boar, the buffalo, the fox, and the noxious reptile, where man often dreads to stay his steps, and hurries away as from a plague stricken land * * * of old yielded rich harvests of corn, wine and oil, and contained numerous cities mighty and opulent, into whose laps poured the treasures of the East, and the more precious produce of Hellenic genius."

This wonderful people disappeared leaving no history of itself. Of the internal life and customs of the nation we have learned only recently through exploration and excavation. Their great reverence for the dead and firm belief in a future life led them to store in their tombs treasures of art, articles of personal adornment, vases, urns, mirrors, et cetera, which have revealed much of their life to us.

"In five centuries the Pontine district was converted from a fertile land, so thickly populated with a warlike people as to excite the wonder of the historian, into a dreary marsh with few inhabitants and more or less unhealthy."

Without question more than one cause must have been operative in bringing about the downfall and disappearance of such a powerful and cultured people involving the destruction of beautiful cities, one of which, Veii, equalled in size Athens or Rome, and which for the magnificence of its buildings was so pre-

ferred by the Romans to the Eternal City itself, that only the eloquence of one man prevented its becoming Roma Nova, and mistress of the world.

In attributing to malaria the primary or even an important role in the production of this desolation, we at once meet with the difficulty, as in the case of Greece, of showing that malaria did not exist, or was not prevalent, among these people during the period of their rise and greatness, and that it later became prevalent. This can be done only by inference. It is not conceivable that the Etruscans should have established themselves, built great fortified cities, and reached such heights of prosperity and civilization, in a country so fever stricken as this territory has been for centuries past. Even with our present knowledge malaria is perhaps the greatest obstacle to colonization and acclimation of European races in the tropical climates.

If malaria had been common, some reference to it would surely be found in the literature of the period, yet the first mention of it we find in Plautus, who died B. C. 184. Cato the Censor, B. C. 232-148, gives advice as to the location of a country house, and speaks of the unhealthfulness of marshy places. Since Cato wrote on many medical subjects, it seems that malaria would have been mentioned had it been known. It appears, therefore, that it must have been absent or so slight as to have escaped attention in his day.

Varro, B. C. 118-29, evidently knew malaria and suggested the etiology, which is perhaps the earliest statement concerning the relation of micro-organisms and disease. He says: "It is also to be noticed, if there be marshy places, that certain minute animals breed which are invisible to the eye, and yet, getting into the system through the mouth and nostrils, cause serious disorders."

Cicero, B. C. 106-43, mentions the tertian and quartan types of malaria, and Livy, B. C. 59-A. D. 17, gives evidence of having known the disease.

Suetonius tells us that Caesar, B. C. 100-44 when fleeing from Sulla, had frequently to change his hiding place "although aggravating his quartan fever."

Pliny, the Elder, A. D. 23-79, frequently mentions tertian and quartan agues, describes the symptoms and gives remedies. Evidently malaria had become widespread in his day.

Though references to intermittent fevers by the classical writers are frequent and definite and show a familiarity with all forms of malaria, there is no mention of particular localities in which infection might occur, though Strabo, B. C. 63-A. D. 23, wrote "All Latium is fertile—except those places which are marshy and productive of disease."

No argument is needed to show the extent of malaria in Italy for several centuries past, nor the blasting effect it has had on the prosperity of that nation. Its effect on the character of the inhabitants has been equally as marked as in Greece. The more enterprising are apt to seek more healthy homes, leaving the poorer and less enterprising, who gradually sink lower and lower. North says of the people of the Roman Campagna, "The moral sense of the natives of these towns is so degraded that the death of a horse or a mule is said to be a matter of far greater concern to them than that of a child or relative."

Are we justified in holding that malaria was responsible for the disappearance of peoples, changes in the aspect of the country and in the types of the inhabitants of these districts? In all cases in which definite history has been obtained, some political cause can also be found which may account for the changes to a greater or lesser extent, such as insecurity of life and property, war and disease and famine following war, with destruction of the works of civilization. Fertile areas when abandoned soon become overgrown, drainage ceases, small water courses become clogged with the production of swamps and marshes where luxuriant fields once

stood. We know that the Campagna was once in a high state of cultivation, studded with towns, and contained many luxurious villas, yet for centuries it has been a desolate waste, notorious for malaria. Sybaris, famous for its wealth and the luxuriousness of its inhabitants, has disappeared, and on its site a pestilential marsh, noted for malaria, now stands.

Doubtless wars, with their attendant miseries, played a large part in the disastrous history of ancient Italy, but it cannot be doubted that malaria made good use of the situation and has ever since held the subjugated districts. "The inhabitants reduced to the utmost state of destitution and misery, the soil untilled, the woods destroyed, the water courses neglected, nature uncontrolled has had her way for centuries with the result that a land which was the home of the greatest empire that the world has ever seen, occupied by a people who excelled in learning and the arts, as in luxury and vice, became a squalid pestilential desert, whose reclamation and restoration to anything approaching its former state will sorely tax the energies and finances of their successors."

Admitting freely that there are gaps in our information, and other causes undoubtedly played an important part, it seems certain that malaria was a prime factor in the decay and downfall of the two great peoples of ancient times, and that the histories of Greece and Italy have been profoundly modified by the implantation and spread of this disease in these countries.

Even the introduction of quinine and the discoveries of Laveran and Ross have not eliminated malaria as an important economic factor in these, as it is today in our own and other countries.

Hookworm. Since Ashford in 1899 demonstrated that the anemia of Porto Rico, which had been recognized as a scourge in that island for more than 100 years, and Stiles in 1902 showed that endemic uncinariasis existed in the United States, many researches have been made and articles written on the extent and effects of hookworm. It produces profound anemia, retarded mental and physical development, permanent reduction in height and weight, muscular weakness with aversion to exertion, miscarriage and still-birth, and a high percentage of impotence in the male and sterility in the female. Its effects on the moral character are no less marked, causing disobedience, cunning, lying, stealing, forgery and sexual perversions, while psychic retardation, irritability, depression and blunting of the higher sensibilities are believed by some to be results.

Infection is widespread in our Southern States, in which 35 per cent of those examined have been found to harbor the parasite. The young are particularly affected, 58.5 per cent being children under 16 in this country. The disease is of long duration, while the parasite may live 12 to 15 years.

The cost to the South in economic waste is estimated at between $250,000,000 and $500,000,000 yearly. This gives an index of the large number of persons infected as well as the influence of the disease in lessening vigor and ability to carry on productive pursuits. Lack of physical development and physical disability lessen working capacity, while retardation of mental development with low vitality reduce capacity to learn—thereby fostering ignorance. Apathy and lack of ambition are typical of the infection, leading inevitably to shiftlessness, poverty and degradation. Geographically the infection is widespread throughout the tropical and subtropical countries. Endemic foci are often found in more northerly climates, especially in mines, workers in which have shown infection to the extent of 65 per cent.

The announcement of Stiles, followed by abundant proofs, excited much interest at the time, which was manifested by numerous discussions in the public press, and the humorists made much use of the

material. At present physicians and health officers remember the existence and bad effects of the disease, but the press has apparently forgotten it, the public has become used to it and interest has lagged. This is the usual story with endemic diseases.

I have selected these diseases to illustrate the baneful effects of endemic diseases on national life and vigor because of the disastrous influence they have had on the history of the world both in ancient as well as modern times, and are even now exercising in our hemisphere. Who can estimate the deterrent effect they have had on settlement and development of new country, and progress in already settled areas? Their heavy hand has also been felt in our economic and political life.

It is very hard to excite a community over malaria or hookworm. Even health officers accept reports of many cases of these diseases with much more complacency than they would a single case of small-pox, yet small-pox has not in the past sixty years done as much damage as malaria does each year. Our Public Health Service, as the result of careful surveys, estimates that between six and seven million persons suffer from malaria annually in the United States. In given communities 40 to 60, and sometimes 90, per cent of the population become infected. Large areas of fertile land remain uncultivated and uninhabited largely because of malaria. In districts where malaria prevails crops are shortened, prosperity and progress lag, while the energies and the ambitions of the inhabitants are sapped. It is this effect on character that gives to the anemia-producing diseases their chief importance and from this arises their baneful economic influence. No nation in the world has become or remained great except through the virility of its people. Death, which is the great fear in acute epidemics, is a lesser evil to a nation than a slow, insidious, widespread disease, which spares life but destroys efficiency.

When an epidemic occurs, health officers are given, or can take, almost unlimited powers, and public sentiment backs them up even in extreme measures, while the public treasury is opened with a free hand. It is quite the contrary, as a rule, with endemic diseases—money to combat them is withheld, there is no excitement or even interest aroused, and public sentiment is not awakened.

One might instance in further elaboration of this theme the complacency with which the general public accepts the loss of 150,000 lives each year from tuberculosis with the economic loss entailed, and the unknown, but certainly enormous toll exacted by syphilis. Both of these diseases are destructive of energy, virility and life, but as with malaria and hookworm, they are, like the poor, always with us, and we have become accustomed to their presence.

I am well aware that whatever force there may be in the facts and arguments I have tried to present will apply with unequal weight to the various sections of our country, depending on the greater or less prevalence, or absence of these diseases. The principle involved is, however, the same for all. My plea is that we cultivate in ourselves and the public a wholesome fear of these infections with a correct appreciation of what they mean to the nation, that in our public health work we emphasize reduction in morbidity rather than mortality rates, and lay less stress on death, which must eventually come to everyone, and more stress on happiness and efficiency.

WHAT CAN A COMMUNITY AFFORD TO PAY TO RID ITSELF OF MALARIA?

L. M. FISHER,
Associate Sanitary Engineer, United States Public Health Service, Columbia, S. C.

Anti-malarial measures, like any others, have a limit beyond which they may be deemed economically unprofitable. Here are given formulæ by which ratios may be figured of costs relative to benefits. For sentimental reasons, however, a community may be willing to pay somewhat more than it could afford as an investment.

UPON the intelligent understanding of this problem will largely depend the rate of progress with which the malarious sections of the country will be cleaned up. In places where health work has been backward the health authorities probably do not realize that the community will tax itself very heavily to assure itself of good health, provided it has confidence in the ability of the health authorities to do what they say is necessary to clean up the community. Good health is the greatest human asset. The extent to which this is appreciated by the average man is evidenced by the fact that advertising concerns find it profitable to make health the "appeal" in a large percentage of the advertising matter put out. Hugo Munsterberg, in his "Psychology of Business," says: "Psychological experiments in which advertisements with different feeling appeals were graded by twenty men and twenty women showed on an average that the idea of health appealed to the personality most strongly. Next comes cleanliness." . . . This is an indication of the extent to which health authorities can draw upon public support when confidence is established by results accomplished.

A man in a desperate situation will pay any sum to escape from it. The only requirement is that it must offer at least a faint chance of success. If his situation is less desperate he will weigh the money cost more in detail. It becomes then a question of relative values.

If a community has much malaria and possesses little money, it can afford to spend little on malaria, for other demands upon its funds cannot be ignored. It must provide for its means of livlihood first. It must finance agriculture, industry; commerce, transportation, and keep business as active as possible. The money a community spends on malaria control should be considered as an investment. *Whether it is a good or a bad investment depends upon the money returns realized just as in the case of any other investment.* The more intelligent and public-spirited a community is the quicker will it be to sense the value of a good investment in malaria control work.

The economic significance of malaria has probably not been fully realized by many people. The insidious losses do not attract marked attention since they are practically an everyday occurrence and few people, comparatively, die of malaria. The losses occur in little leaks. Personal efficiency is reduced. The business man is not fully alive to his opportunities. The laborer cannot render full value for his wages. His employer loses thereby and recoups his losses by reducing the pay for labor, thus the loss is passed on to the laboring man. The pro-

fessional man suffers like the business man—from decreased personal efficiency. In addition both suffer from the smaller volume of business and from poorer collections because of the reduced prosperity of the community.

The manufacturer loses because of the lowered efficiency of the operative, and because of idle machines due to illness.

The railroads lose because the community does not produce the freight it would produce if every worker were fully efficient.

Time is the essence of the computation of the amount of this loss. If a cotton mill, for instance, produces 5,000 pounds less manufactured goods a day than it would produce if there were no malaria, it loses daily the profit it would make on manufacturing 5,000 pounds of goods. The laborers lose each day the compensation they would receive for manufacturing 5,000 pounds of finished product. The railroad loses the revenue it would earn each day by hauling 5,000 pounds of freight from the community. The merchants lose because there is less money to spend that day. The doctor loses because the wage earner must spend his money for the necessities of life, leaving little or nothing for family medical attention. The children, who are the first in the community to suffer, acquire a defective education because of lost days at school, and inefficient days. This handicap projected over a period of years in the lifetime of the individual may become very formidable in dollars and cents. It is not practicable to name a definite figure indicative of this loss. The community, however, realizes that it is a very real loss.

The farmer loses a portion of his crops because his labor is in bed or only partly efficient. Some of the family lose time nursing the sick; money is spent for quinine and other medicines, for screens, mosquito lotions, chill tonics and so forth.

The property owner loses because of depreciated property values and low rents.

If all these losses are figured up for the year and capitalized, the result indicates from an economic and commercial view an amount for which the community would be justified in issuing bonds to effect permanent relief if a bond issue would have to be resorted to, or a cash expenditure, which would be justified if a bond issue would not have to be resorted to. From the result thus obtained, a sum must be deducted the interest on which would pay for the maintenance charges on the permanent work.

Thus if the losses above referred to should amount to, let us say $8,000 a year, for the community, and figuring interest and sinking fund charges at 8%, the losses capitalized would amount to $100,000. Now if maintenance of ditches, etc., would cost $2,400 a year, this sum capitalized with interest at 6% would amount to $40,000. The community would, therefore, be justified in bonding itself for $60,000 or in raising and spending $60,000 in cash. Whatever additional value the community would place upon the comforts of being free from mosquitoes, enjoying a good reputation as a healthful, energetic, enterprising town, could be added to the sum of $60,000 above referred to.

The enormous drain malaria is upon the resources of a community tends to discourage those who must bear it, so that the enterprising ones will abandon the locality. What may be called a deterioration in the quality of the population is thus accentuated.

Carter observed that it is progressive, and commenting upon the above deterioration said in effect that in a country where malaria is prevalent the control of malaria is more important than the control of all other communicable diseases, including smallpox, cholera, bubonic plague, yellow fever, typhoid fever, dysentery, tuberculosis, etc.; that the population would move out of a malarious coun-

try and would not return,—they would return after the passing of a yellow fever epidemic or after cholera or after plague, but that malaria ruined a country economically.

Now if in the above assumption the community contained a population of 3,000 the per capita first cost would amount to $20, but if the results sought, namely, the elimination of malaria, were accomplished, the expenditure would undoubtedly be justified, although the per capita cost is high.

The first cost for malaria control work varies widely for different communities. In some localities it may amount possibly to some figure like $1.50; in others it may amount to twenty times as much or even more. *It may even amount to a figure which would make it cheaper to abandon the property created by the community and let the people move away, rather than pay the cost of eliminating malaria.* In such a case decision must be made between continuous malarial infection or abandonment of the property which the industry of the community has created. It is thus caught on the two horns of the dilemma. Some communities were perhaps abandoned where control measures intelligently applied would have cost less than the value of the property abandoned, but were abandoned because knowledge of just what was necessary to be done did not exist.

The best course to pursue depends in such a case upon three factors: the annual community loss, the first cost of permanent work, and the cost of maintenance.

Let us assume that:

1. P equals the population in the community and
2. C the per capita first cost of malaria control work, then
3. PC is the total cost of the work. Now if
4. I is the interest and sinking fund charge in percent, then
5. PCI is the total annual interest and sinking fund charge in dollars. If
6. M is maintenance in percent of first cost, then
7. PCM is total annual maintenance charge, and
8. PCI + PCM = Total annual cost, interest and maintenance. Let
9. R = percent of population infected, then
10. PR = number of infected persons in the community. Now if
11. V = the annual loss in dollars per person infected, then
12. PRV = total loss to community annually before control and equals average annual gain after complete control, and
13. PRV − (PCI + PCM) = Total saving for community = P(RV − C(I+M), and
14. $\frac{PRV - (PCI + PCM)}{P}$ = Net average annual gain per capita = RV − C(I + M) and
15. $\frac{\frac{PRV - (PCI + PCM)}{P}}{C}$ = Annual dividend to community on first cost $= \frac{RV - (I + M)}{C}$.

Now if only partial control is effected and we let

16. F represent the percentage of control, such as 65%; 80%; 90%, etc., then equation 12 will become.
17. PRVF = average annual gain under partial control; this factor F will appear in each of the remaining equations and equation 15 will take the form
18. $\frac{RVF - (I + M)}{C}$ = Annual dividend to community on first cost.

From this equation it is evident that the dividend varies directly as the percentage of the population infected, directly as the loss per person infected, directly as the percentage of control and inversely as the per capita first cost, i. e., the greater the infection, the greater the

dividend; the greater the annual loss per person infected, the greater the dividend: the greater the percentage of control, the greater the dividend, and the less the first cost the greater the dividend. The percentage of infection alone does not determine the wisdom of undertaking the work nor does the per capita cost, but both must be considered together.

Now if we take two communities A and B, equal in population and assume interest charges the same in both places and annual maintenance a fixed percentage of the first cost in each place, the annual loss per person infected the same in each place and 100% reduction in each place, but with only 10% of the population infected in A and 85% in B and with a per capita cost of only $1.50 in A whereas it is $10.00 in B; then substituting these values in equation 18 we have for A, Dividend =

$$\frac{10 \times 5 - (8 + 7)}{1.50} = 18\%$$

and for B, Dividend =

$$\frac{85 \times 5 - (8 + 7)}{10} = 27\frac{1}{2}\%.$$

These results are only illustrative but indicate that the dividends on the first cost in the case of B are greater than they are for A although the per capita cost for A was very much less than for B.

Therefore, in order to arrive at an intelligent decision as to the profit of proposed malaria work in a community the first requirement is that a malaria census be taken to determine the approximate annual loss suffered because of malaria. The next step should be the preparation of an estimate of first cost and of maintenance annually. From formula 18 the annual average dividend could be approximated.

The sum that a community could *afford* to pay on the above assumptions may be very materially more than the sum it is *willing* to pay.

□

DETROIT SUMMER HEALTH CAMP

To help the most needy cases among children in getting back to normal, the Detroit Health Department opened in June, a camp on the site of the new Tuberculosis Sanatorium. This is an area of about a square mile in the country north of the city. The children are taken to the camp for a five-weeks' stay in relays of about 85, so that somewhere about 200 children who have been in the open-air schools during the past year are provided for. It is estimated, however, that open-air school space is needed for about 900 more.

The children at the camp are housed in army tents loaned by the Government, and spend the day in a regular order of sleeping, eating, swimming, games, and walking. A complete physical examination, including a culture from the throat, was made before the children were sent to the camp.

STATUS OF STATE BUREAUS OF CHILD HYGIENE

ANNA E. RUDE, M.D.
Director, Division of Hygiene, U. S. Children's Bureau
Washington, D. C.

Read at the Child Hygiene Session, American Public Health Association, at San Francisco, Cal., September 14, 1920

CHILD Hygiene is an essential part of any general program in public health and preventive medicine, and the prominence which this subject is assuming in this as well as other countries is indicative of its fundamental importance. No other phase of public health today compares in popularity with the child hygiene movement. Much confusion seems to have arisen in defining the terms "child hygiene" and "child welfare." Popular usage understands "child hygiene" to mean something less than health, while in the social service field the term "child welfare" has grown to have a meaning which applies only to selected groups of unfortunate children, such as the dependent, defective, delinquent, or neglected. This use of terms is probably the result of a lack of correlation of many individual activities dealing with special phases of welfare, but a changed attitude is imminent in that the tendency now is to see that the great mass of children bears a normal relation to society, and that health, education, recreation, and suitable employment are essentials in the normal life of all children. Literally understood, "child hygiene" is a more limited term than child welfare, which includes all conditions affecting the general well-being of the child. In the development of all comprehensive public health programs it is noteworthy that recognition is given more and more to the social and economic conditions as having a direct bearing upon all matters of hygiene; therefore, "child welfare" probably better defines the present day movements towards safeguarding the health of the child than "child hygiene."

While the effects of war, through a reduced birth rate, and an increased sickness and death rate due to a scarcity and high cost of food and general hardship and privation which lower resistance to all forms of disease, have compelled other countries to realize the imperative need of the conservation of the life and health of the child, our more fortunate country is none the less alive to the importance of the problem.

In this country, as in foreign countries, a history of the child welfare movement shows that philanthropic and voluntary effort have initiated the work, which, serving as a demonstration, has quite logically been taken over eventually by local authorities. Such a multiplicity of child welfare organizations have been started and grown with such incredible rapidity that at present the varieties and complications of activities are confusing if not bewildering, and definite constructive state-wide plans are necessary for efficiency and standardization.

The first State Child Hygiene Division in the United States was not established until 1912 and during the following 5 years only 8 States organized to assume the responsibility for state-wide child welfare work. The period 1918 to 1920 was a record-making time, with an increase of 23 state divisions, while 3 newly-established divisions during the present year make a total of 34 states now organized to carry on child welfare activities on a state-wide plan.

STATE DIVISION OF CHILD HYGIENE AND CHILD WELFARE

State	Date and official name	Director
Louisiana	1912 Subdivision of Division of Hygiene	Miss Agnes Morris, State Board of Health, New Orleans.
New York	1914 Division of Child Hygiene	Dr. M. Edgar Rose, State Board of Health, Albany.
Kansas	1915 Division of Child Hygiene	Dr. Florence Brown Sherbon, State Board of Health, Topeka.
Ohio	1915 Subdivision of Child Hygiene in Division of Hygiene	Miss Natalie Merrill, State Board of Health, Columbus.
New Jersey	1915 Division of Child Hygiene	Dr. Julius Levy, State Board of Health, Trenton, N. J.
Massachusetts	1915 Subdivision of Child Hygiene in Division of Hygiene	Dr. Merrill E. Champion, State Board of Health, Boston.
Montana	1917 Child Welfare Division	Mrs. L. J. Reid, State Board of Health, Helena.
Illinois	1917 Division of Child Hygiene and Public Health Nursing	Dr. C. W. East, State Board of Health, Springfield.
Pennsylvania	1918 Division of Child Health	Dr. Ellen C. Potter, State Board of Health, Harrisburg.
Florida	1918 Bureau of Child Welfare	Dr. Wm. B. Keating, State Board of Health, Jacksonville.
N. Carolina	1918 Bureau of Public Health Nursing and Infant Hygiene	Miss Rose M. Ehrenfeld, State Board of Health, Raleigh.
Minnesota	1918 Division of Child Conservation	State Board of Health, St. Paul.
Arizona	1919 Department of Child Welfare	Mrs. C. R. Howe, State Board of Health, Phoenix.
California	1919 Bureau of Child Hygiene	Dr. Ethel M. Watters, State Board of Health, 511 Underwood Bldg., San Francisco.
Colorado	1919 Child Welfare Bureau	Mrs. Mary E. Holland, Ex. Sec'y, Department of Public Instruction, Denver.
Connecticut	1919 Bureau of Child Hygiene and Division of Public Health Nursing.	Miss Margaret K. Stack, State Board of Health, Hartford.
Georgia	1919 Bureau of Child Hygiene	Dr. Lydia Allen De Vilbiss, State Board of Health, Atlanta.

Idaho	1919	Division of Child Hygiene	Department of Public Welfare, Boise.
Indiana	1919	Division of Infant and Child Hygiene	Dr. Ada E. Schweitzer, State Board of Health, Indianapolis.
Kentucky	1919	Division of Child Hygiene	State Board of Health, Louisville.
Michigan	1919	Bureau of Child Hygiene and Public Health Nursing	Miss Harriet Leck, State Board of Health, Lansing.
Missouri	1919	Division of Child Hygiene	Dr. C. B. Knight, State Board of Health, Jefferson City.
Nebraska	1919	Child Welfare Bureau	Mrs. Emily P. Hornberger, Department of Public Welfare, Lincoln.
New Mexico	1919	Child Welfare Service	Dr. Sarah Coker, Department of Education, Santa Fe.
Rhode Island	1919	Division of Child Welfare	Dr. Elizabeth Gardiner, State Board of Health, Providence.
S. Carolina	1919	Bureau of Child Hygiene and Public Health Nursing	Mrs. Ruth A. Dodd, State Board of Health, Columbia.
Texas	1919	Bureau of Child Hygiene and Public Health Nursing	Mrs. Ethel Parsons, State Board of Health, Austin.
Utah	1919	State Department of Health Education	Dr. E. G. Gowans, Department of Public Instruction, Salt Lake City.
Virginia	1919	Division of Child Hygiene and Public Health Nursing	Dr. Mary E. Brydon, State Board of Health, Richmond.
W. Virginia	1919	Division of Child Welfare and Public Health Nursing	Mrs. Jean G. Dillon, State Department of Health, Charleston.
Wisconsin	1919	Bureau of Child Welfare and Public Health Nursing	Mrs. Mary P. Morgan, State Board of Health, Madison.
Maine	1920	Division of Public Health Nursing and Child Hygiene	Miss Soule, State Board of Health, Augusta.
Alabama	1920	Bureau of Child Hygiene and Public Health Nursing	Miss Jessie L. Marriner, State Board of Health, Montgomery.
Mississippi	1920	Bureau of Child Welfare and Public Health Nursing	Dr. Edith B. Lowry, State Board of Health, Jackson.

It is interesting in passing to note that though public health measures are so largely educational in character, these state child welfare divisions, with three exceptions, have been established under State Boards of Health, the exceptions being Colorado, New Mexico, and Utah, whose divisions are under Departments of Education, and Idaho and Nebraska, whose divisions are under Departments of Public Welfare, which presumably are substitutes for the regulation State Boards of Health. In Massachusetts, Ohio, and Louisiana the State Board of Health organization places child hygiene as a subdivision under departments of general hygiene.

While the pioneer work done in the 8 original state divisions undoubtedly helped to serve as a model for other divisions, it is the purpose of this paper to analyze in general the organization and different lines of approach which have developed in the more recently organized divisions. State undertakings have naturally varied with local conditions, which must serve as the foundation in developing work; therefore efficient organization from the beginning has been more or less dependent upon the extent to which previous child welfare activities had prepared the way.

The following topics serve to cover the general lines of development, which have been submitted in reports on state departments of child hygiene or child welfare:

Initial Survey.—Since intelligent action must be based upon an exact knowledge of existing conditions, a first step might logically be a preliminary survey of the state, made by personal visits or questionnaires, to determine existing agencies engaged in child welfare work and the character and extent of their work. Yet only in 6 states out of the 30 from which reports are available has the work been begun with a general census-taking of the state's activities dealing with child welfare problems. Two states limited their surveys to specific problems, namely, midwifery and infant mortality, rather than general child welfare activities; while other states have undertaken surveys of communities or counties and concentrated efforts on these smaller areas, which were intended to serve as demonstrations for the rest of the state.

Budgets.—State appropriations for child-welfare divisions show a great disparity, New Jersey leading with $150,000 as a 1920 budget and Idaho with only $3,800 for two years' work. This wide range in state appropriations indicates to a certain degree possible undertakings, but this is not an invariable rule, for in Minnesota where a state appropriation was entirely absent the child welfare activities were taken over by the State Public Health Association in cöoperation with the pediatric and gynecological societies of the state and most creditable work effected. In Missouri, where the legislature created a state division of child hygiene but made no provision for funds with which to develop and carry on the work, federal funds were made available, and, through effective cöoperation, state-wide child welfare activities have been developed. Although figures or budgets have been reported from only a limited number of states, the available data point to the fact that a number of the newer state child hygiene divisions which are best organized for effective work are functioning on initial budgets of $10,000 or $12,000 for their first year. Obviously larger appropriations are necessary to develop satisfactorily any state-wide plans, but the possibilities for beginning active work even on limited funds are well demonstrated by the majority of state divisions, and increasingly large appropriations will follow in natural order.

Organization.—A director and office secretary appear to be the only constant members of staff personnel. Other members are assistant director, supervising and public health nurses, organizer, child welfare visitor, lecturer, educational secretary, etc.

Adoption of Standards for Working Basis.—In a number of states, after a preliminary survey of activities, the Children's Bureau's Minimum Standards for Public Protection of the Health of Mothers and Children have been adopted and used in outlining work. While the realization of these standards is a distant goal in many states, Kansas is making an interesting demonstration through its State Women's Committee, which is organized in fifty counties and is measuring the present condition of Kansas children by these standards. The survey is general, covering all interests of children; namely, health of mothers and children; dependent, defective, and delinquent children; and children in industry. A series of club study outlines has been based on the standards and the Women's Bar Association is making an index to Kansas laws relating to women and children.

Standardization of Legislation.—Health legislation very definitely intersects all child welfare activities in many interesting ways as shown in laws on eugenics, birth registration, midwifery, ophthalmia neonatorum, boarding homes, institutional care, maternity benefits, mothers' pensions, social insurance, etc.

In several State Child Welfare Divisions popular demand for information regarding existing laws affecting the welfare of children has made necessary a survey of such laws, setting forth their inadequacies and limitations, and the need for new legislation to accord with progressive development. So-called "Children's Codes Commissions" have been organized in 18 states and the District of Columbia, and are functioning, not in the ordinarily accepted meaning of the term code, a digest of laws, but covering general existing conditions affecting children and purposing to coördinate and supply laws and administrative agencies to handle various aspects of child welfare that are handled inadequately or omitted. Laws on birth registration and midwifery are the ones which have been given special prominence in state child hygiene reports.

The plan of the New Jersey State Child Hygiene Division serves as an excellent example of how, through coöperation, extra-official agencies can be utilized to further desired legislation. In coöperation with the State Child Hygiene Division and the State Bureau of Vital Statistics, the Women's State Council of Child Welfare through its county chairmen has conducted a state-wide birth registration campaign, with the ultimate aim of putting New Jersey in the birth registration area. Of the 34 states now organized for state child welfare work, 15 are still not included in the birth registration area. Not only is birth registration of primary importance for records of vital statistics, but early and accurate notification forms the nucleus around which centers all infant welfare activities.

Although 5 state departments appear to be actively attacking the problem of midwifery, South Carolina and New Jersey reports conspicuously emphasize improved legislation making training, supervision, and licensing of midwives compulsory.

Obviously, standard legislation and enforcement of it, is fundamental to any child-welfare program, and all efforts at legislative standardization, if not initiated by, should at least be very closely correlated with State Child Welfare or Child Hygiene Divisions.

Education.—Although public health and preventive medicine are primarily educational in character, child welfare is concerned with the specific education of parents and children.

Popular methods of carrying out child welfare educational activities have been participated in by all 34 functioning state child welfare divisions and practically uniform methods used which may be grouped as follows:

(1) Publicity, through press, pulpit, literature, lectures, slides, films, etc.

(2) Campaigns, such as health week,

birth registration day, Baby-Week, Children's Year, etc.

(3) Exhibits.

(4) Classes for mothers, Little Mothers' Leagues.

(5) Health Centers.

Probably today there is no state in the Union which cannot boast of a varying number of health centers, most of which have been developed under or in coöperation with its State Child Welfare Division and local or national organizations. In fact, the health center today figures as the objective in many phases of child welfare work and as developed in many communities is, strictly speaking, a community-educational center whose functions are not only to advise on the hygiene of the child but to conduct classes for teaching mothers as well.

Curiously enough, our early health centers were usually called infant welfare centers, and provided for the care of children only during the first one or two years of life, but as child welfare work has expanded we find many consultation stations and organizations changing their names to more inclusive terms covering the entire period of childhood. Need for periodic physical examinations, hygienic advice, and supervision of the preschool child is now considered quite as important as similar assistance during infancy. The possibilities for development in child welfare activities through such centers is only partially indicated by such developments as infant feeding classes, nutritional classes, prenatal work, dental care, etc. Increase in clinical and hospital facilities must ultimately form the link in the chain by making adequate care available to all mothers and children.

Coincidently with the development of the health center has been the development of public health nursing work. Additional teaching of mothers in their homes as well as in centers has been found necessary to secure the best results, and here lies one of the greatest opportunities for the public health nurse. Public health nursing, like other phases of public health, is essentially educational and is fundamental to the success of the child welfare movement.

During the past few years many Public Health Nursing Divisions have been formed in State Departments of Health. In 12 states, Illinois, North Carolina, Connecticut, Michigan, South Carolina, Texas, Virginia, West Virginia, Wisconsin, Maine, Alabama and Mississippi, public health nursing divisions have been combined with child hygiene. In many instances this arrangement is only temporary, pending adequate appropriations allowing for directors of separate divisions.

A distinct directly educational approach in promoting child welfare is being made, either coincidently with or entirely apart from other activities, through existing educational channels, such as normal schools or other schools graduating teachers, and teachers' institutes. New Mexico, Virginia, and South Carolina reports especially emphasize this training of teachers, and several other states have prepared hygiene courses for use in elementary schools. Undoubtedly this line of approach is a logical one in many states where general public health work is in its infancy and where the school machinery is the only available organized institution through which to work. The need for the standardization of school hygiene has been given recognition in several states, where uniform record cards for physical examinations have been made in coöperation with the Department of Education.

Statistical Studies.—Careful analysis of the vital statistics of the state to determine the areas of greatest child mortality and morbidity is an effective method of visualizing local conditions with a view to stimulating interest.

The infant mortality rate is considered today to reflect the intelligence of the people of a community, hence careful statistical studies in all the State Child Welfare Divisions could be profitably

made. Differentiation of stillbirths, premature births, deaths under one week and under one month affords a fruitful field in this country.

Research.—Only one state child hygiene division has reported research work as one of its functions. This study is on gastro-intestinal disorders of children and is undertaken in coöperation with three other state departments. It is planned to make continuous observations on a large number of infants in communities of various types for a period of some months. The study will include housing, sanitation, clinical observations, laboratory analyses, with a final careful study of data obtained.

The field of research as a necessary adjunct to a state child hygiene division is practically unexplored, and presents unlimited possibilities of correlation between child welfare and venereal disease, tuberculosis, and other communicable diseases, infectious diseases, stillbirths, and kindred subjects.

Coöperation.—A study of the organization charts of state and municipal child hygiene or child welfare divisions emphasizes not only the relative importance and signal pre-eminence which such state departments hold, but also shows the many lines of coöperation essential to the success of any state child welfare program. For effective service, mutually stimulating coöperation should exist between the child welfare or child hygiene division and the other state board of health divisions, namely: Vital Statistics, Laboratory, Communicable Disease, Sanitary Engineering, Social Hygiene, Public Health Nursing, Tuberculosis, Industrial Hygiene, etc. Among the state coöperating agencies are the State Department of Public Instruction, Board of Charities and Corrections, Board of Control, Department of Agriculture, Medical Association, Dental Association, Health Officers' Association, Tuberculosis Association, American Red Cross, University Extension, and Women's Organizations.

The topics in this paper are from necessity considered only along very general lines. Many state plans in detail are truly inspiring and promise excellent results. A bird's eye view of present child welfare activities shows a definite focusing of action on later infancy and the preschool period (through health centers) and on the school period, leaving the extreme periods of child life, early infancy and the industrial period practically untouched.

It is singular that action has so slowly extended toward the point at which it should have logically begun — eugenics and prenatal care; since health in infancy in a large measure determines the general health standard of the whole of life. That the general downward trend in infant mortality is not due to fewer deaths during the first month of life, calls for definite action centered on the protection of the infant by ensuring the welfare of the mother during pregnancy, confinement, and the lying-in period. Only 9 of the state child welfare divisions have reported definitely as doing prenatal work, which has consisted chiefly of distribution of literature, a series of prenatal letters being used in 4 states. One state division reports coöperation with its State Obstetrical Society for the purpose of developing prenatal clinics. While pediatrists are now stressing breast feeding as the most important single factor in the reduction of infant mortality only two state reports have emphasized this important subject. Such facts indicate some essential aspects of the problem which must be faced and solved. Federal stimulation and financial assistance to meet the problem of early infancy are embodied in the Sheppard-Towner Bill, known as a bill for the protection of maternity and infancy, now before Congress.

The examinations for the draft, and the causes for rejections, aroused a notable interest in health and hygiene. Health at all ages of life is now a matter of general interest. It is significant that

even lay persons were struck by the fact that most of the disabilities causing rejections in the draft might have been corrected in infancy or early childhood. In 1912 there was one state division of child hygiene; in 1920 there are 34. These figures indicate that at last we are realizing that child hygiene is the most important of all hygiene; that child welfare is the welfare first to be considered; that a child hygiene division is the center, the focus, of state public health work.

NOVA SCOTIA'S HEALTH CARAVANS

Here is Health Caravan No. 1 in charge of Dr. Edgar Douglas leaving Provincial Red Cross Headquarters via Sam Slick's residence at Windsor, headed for Evangeline country, the Gaspereaux, Cornwallis and Annapolis Valleys, thence through the municipality of Clare, where direct descendants of the returned Acadians dwell. This is one of two caravans leaving Halifax to tour Nova Scotia, and after rounding the southwestern tip of the Province will journey northward along the southeast coast for a distance of four hundred miles, holding educational, diagnostic and operative clinics, and moving picture shows in all important and central fishing villages. A duplicate caravan goes along the northern shore of Minas Basin, the south shore of Northumberland Straits, through Cape Breton and the coal fields adjacent to Louisburg and other fishing villages in the far north and east. The shabby ambulance in the rear of the caravan is a war veteran, which has been purchased by the school children of Nova Scotia. It served on the battlefields of France where it carried thousands of wounded to the rear. The damage to the ambulance cover was received on the battlefield.

INDUSTRIAL HEALTH EDUCATION—A MEANS AND AN END

JULES SCHEVITZ, B.S.

General Secretary, Oklahoma Tuberculosis Association
Oklahoma City, Oklahoma

Read Before Industrial Hygiene Section, American Public Health Association, at San Francisco, Cal., September 15, 1920

If health officers were backed in their work by business men they would no longer worry about inadequate appropriations or political interference. Business men already know the economy of health in the factory. It is the duty of industrial hygienists to furnish the missing link and educate the business man to the value of bettered public health to his factory and himself.

THE past ten years have witnessed a remarkable advance in the movement for the promotion of the health of the worker. The experience of large and small industrial enterprises has revealed the value of this movement, both from the point of view of reduction in amount of illness among the workers as well as in increased efficiency and production in the plant.

The first aid, accident prevention and safety first campaigns, were the logical forerunners of the modern industrial hygiene movement, and it was only natural that employers of labor recognizing the value of these earlier life-saving measures, agreed to try out the more constructive program of medical, surgical, nursing and other welfare services.

While the motives of the employers of labor may not have been primarily altruistic, great credit is due these leaders of enterprise who by their vision and far-sightedness were able to stimulate the entire industrial health movement to such a marked degree. More recently public and private agencies have become interested in the movement for the health conservation of the workers. Divisions of industrial hygiene in state and local health departments have been most active along these lines. These agencies have been able through education and by other means to interest an increasingly large number of employers to institute the methods of health conservation so successfully administered in other plants.

Contact with the head of industry is a valuable opportunity accorded many industrial health workers. If, in addition to proving to the employer that the expenditure for the administration of complete medical, nursing and welfare services is a good investment, paying large dividends, the health worker will attempt to win over the business man to the cause of health promotion outside of industry, he has done something which may in the long run be of greater service to humanity than the introduction or expansion of a health service in one particular plant.

What most health workers have been doing in the past has been to consider industrial health solely as an end in itself, namely, the prevention of occupational diseases and the promotion of the health of the worker. We apparently have been satisfied in accomplishing this end, and have gone no farther. Of equal, if not greater, importance to the entire public health movement is the capitalization of this demonstration to the employer and business man, that disease can be prevented, that health can be pur-

chased, and that the same constructive methods will prove equally effective in the general health campaign. In other words, after having demonstrated the value of industrial health as an end in itself, why not use this demonstration as a means of gaining the enlightened and influential support of the business interests of this country in the general health campaign?

An experiment of the Oklahoma Tuberculosis Association in the field of industrial health—as a means and an end—will illustrate the advantages to be gained from such an effort. The Oklahoma Tuberculosis Association is a volunary health organization engaged in a statewide campaign of public health education, including an effort to stimulate business and professional men, state officials, commercial and civic organizations in the public health campaign.

Fortunately for the organization, from its very inception it has had the guiding influence and helpful supervision of business men of the highest order—men who apply to the conduct of this health organization the same sound business principles regularly used in their own successful enterprises. The longer these men were associated with the state association, the more pronounced were their convictions that the enlightened interest of the business and professional men was essential to an effective and well-supported public health program. This applies equally to the official health agency as it does to the voluntary organization.

The purposes of the experiment referred to above are two-fold—to prove to the business man that health conservation methods applied to his own industry mean a saving in man-power with consequent increase in production and efficiency, and second, when this is accomplished to enlist the interest of the business man in the general health campaign. First, we approach him on his own ground and talk to him in his own language, and later having obtained his confidence, the opportunities in the broader public health field are presented to him.

An industrial health secretary carries on a health educational program in industry by means of talks to employees, distribution of literature in plants, "Health First" posters on bulletin boards, exhibition of motion pictures, and display of special exhibit material. This educational work is well received by the employer and may be the first step in bringing about the introduction of a complete industrial health service. In most instances, this is the employer's first contact with any public health work, despite the various forms of private and official health work carried on in his own community. He expresses a desire to coöperate in the educational campaign in his own plant and evinces interest and surprise when informed of the activities of the local health agencies. One frequent outcome of these dealings with the employer is the gaining of an additional supporter in the general health campaign. This may take the form of his definite affiliation with a voluntary health organization or leadership and interest in health committees of commercial and civic organizations.

These new contacts are carefully followed up by correspondence from the state office, by bulletins of particular interest to the employer, by our monthly health journal, the Pow-Wow, and as often as possible by personal interviews with officers and members of the staff of the state association. We have always maintained the attitude that the health campaign is of sufficient importance to command the attention and time of the highest type of business and professional men in the community, and have consequently selected the busiest and most influential persons to align themselves with us in our work.

At the coming State Public Health conference, we are planning to conduct a special "Business Man's" health session, dealing with the relation of the business man to the health movement, and we are

hoping to have a very encouraging attendance as a definite sign of the business man's interest. With health playing such a vital part in community life and so thoroughly interwoven with commercial and civic advancement, it is only proper that the business interests should lend their best efforts to the health movement. This session will be attended by leading employers and business men and representatives of civic and commercial organizations in the state. The business man will be made to feel his responsibility and the need for his close coöperation in the health campaign. As a further effort to draw the business interests closer to the health movement, it is planned to have the question of health discussed before various commercial gatherings in the state.

Applied on a larger scale, this would mean that representatives of large business interests will take a part in national health gatherings and representatives of health organizations will participate in the programs of commercial gatherings. Such a relation would bring the question of health to the fore in public attention and among other results we may expect political conventions and legislative bodies to think of health as a live issue not to be cast aside until expediency deems otherwise, but to be considered along with other important national and state questions.

Local and state health departments are the constituted and recognized authorities for the protection and improvement of the public health. It should require no great array of facts to prove that the efforts of these agencies in the health campaign are very much handicapped and the attainment of their goal greatly delayed without the thorough understanding and whole-hearted coöperation of the business and professional interests of the country. We are all familiar with numerous instances of health laws and regulations unenforced because they lack the support of an enlightened public opinion. We can all point to health departments, local, state and even federal, that are trying to meet problems of the greatest magnitude with a mere stipend granted by the governmental bodies.

With the assistance and backing of business men, health departments will no longer have to worry about inadequate appropriations and political interference. The enforcement of health laws will be demanded instead of discouraged, and the campaign of public health education will take a long step forward.

To the industrial health worker is presented this excellent opportunity for advancing not only the industrial hygiene movement but the entire public health campaign. Will he take advantage of this opportunity?

□

Child Welfare Work in Belgium.—A national children's bureau has been established in Belgium. The bureau is directed by a board of forty members, called the "Conseil superieur des oeuvres de l'enfance." This board has the decision on all questions relating to the protection of children; it issues orders concerning the functions of subsidized agencies; it takes necessary measures for the protection of children within the limits of the law; and determines the use of funds at the disposal of the bureau.—*Journal A. M. A.*, April 24, 1920. (*J. A. T.*)

Electrical Purification of Air.—The possibility of precipitating liquid or solid particles floating in air has been appreciated for some time. An experimental bacteriological application of this fact was made by submitting to a current of 50,000 volts, air polluted with a homogeneous mineral powder in which had been seeded a culture of *Micrococcus prodigiosus*. This air was found to be sterile whereas the neighboring atmosphere showed a mean bacterial count of 150 colonies per cubic meter.—D' Arsonval, et al. *Revue Sci.*, March, 1920.

TRUTH IN ADVERTISING DRUG PRODUCTS

ARTHUR J. CRAMP, M. D.,
Director of Propaganda for Reform Department, Journal of the American Medical Association, Chicago, Ill.

Read before the Food and Drugs Section, American Public Health Association, September 16, 1920, at San Francisco, Cal.

Advertisements of patent medicines are not controlled by law, although the labels on the boxes and bottles are, to some extent. Statements made in patent medicine advertisements are often notoriously exaggerated. Dr. Cramp asserts that, so long as the individual can have proprietary monopoly in his product, it is hopeless to expect truth in the advertisements.

ADVERTISING as we know it today is a thing of recent development. The advertisement of 1920 differs widely from the advertisement of 1820, and even of 1880; it differs not only in its appeal, but in its intent. In the earlier day the advertiser was usually content to notify the public that he was in a position to supply certain of its demands. The modern advertiser goes much further. He does more than aim to supply a demand; he actually creates a demand. Twentieth century advertising may be said to be the art of awakening in the public a demand for things which, otherwise, it might not even know about, and for which it certainly has no craving. It is this changed conception of what constitutes legitimate advertising that has made some thoughtful students of the subject seriously question whether there is any proper excuse for advertising products that are used in the treatment of human ailments. One may produce plausible economic arguments in favor of such advertising, applied to ordinary merchandise, as will make the public buy more of these commodities than it actually needs or can properly afford. But there is nothing to be said in favor of so advertising drug products as to stimulate a demand for them in excess of their legitimate need.

THE DEMAND ELEMENT IN MODERN ADVERTISING.

The present trend on the part of many by no means unintelligent people toward the various so-called drugless-healing cults or fads is the not unnatural reaction to the over-drugging of the public, both by the public itself and by physicians. And this over-drugging has been brought about largely through the power of modern advertising. The use of drugs in the treatment of many human ailments is, in the present state of human knowledge, necessary, but there is no excuse for stimulating the use of drugs beyond the point where they are very definitely indicated. Yet that is exactly what must happen if the sale of drug products is to be stimulated in accordance with the tenets of modern advertising.

The advertising director of a large pharmaceutical manufacturing house recently contributed an article to a magazine devoted to the art of advertising. In explaining the method employed by the manufacturing pharmacist for stimulating a demand on the part of the physician for drug products, he said:

"He gets out expensive 'literature.' He advertises freely in the medical journals. He sends out letters and pamphlets through the mails. He trains a staff of 'detail men' and

has them call personally on physicians. Other ways and means are employed with intelligence and discretion to create a demand among physicians for the new and improved products of the manufacturer."

Should the physician's experience and study tend to cause him to use drugs less and other therapeutic aids more, the advertising campaign of the pharmaceutical manufacturer may be counted on to counteract this tendency. Of such advertising the authority just quoted said:

"It keeps alive the practitioner's confidence in medicinal agents. It defeats the tendency frequently exhibited toward therapeutic nihilism."

The modern advertisement, then, is "selling copy"—an appeal that creates a demand—rather than "offering copy" or the mere notification of where already existing demands may be filled. But there is a further factor that puts the advertising of drug products on an entirely different footing from that of the advertising of other merchandise. As has been pointed out elsewhere[1] the man selling drug products has a tremendous advantage over the man selling ordinary merchandise. The seller of shoes, pianos or automobiles has Nature as his antagonist; wear and tear will show the purchaser whether or not he has been defrauded. But the exploiter of drug products has Nature as an assistant; the purchaser is seldom, if ever, able to be sure whether any beneficial effect that may follow the use of certain medicaments is due to the drug or to the healing power of Nature itself. The human mind is so constituted that it is much more prone to give credit to artificial agencies (in this case drugs) than to natural agencies; the seller of drugs reaps the benefit of this common weakness.

CLASSIFICATION OF ADVERTISED DRUG PRODUCTS.

As a convenient, although arbitrary classification, drug products that are advertised may be grouped thus:

GROUP 1: Non-proprietary pharmaceuticals; official or semi-official in character.

GROUP 2: Scientific proprietary products advertised to the medical profession for prescribing and dispensing purposes.

GROUP 3: Unscientific proprietary products nominally advertised to the medical profession for prescribing and dispensing purposes.

GROUP 4: Proprietary products advertised to the public as home remedies for the self-treatment of disease; colloquially, "patent medicines."

GROUP 1: Advertising of medicaments in this group can be dismissed in a few words. The products being non-proprietary in character, non-secret in composition, their standards of strength and purity being constant and maintained by state and national laws, the advertisements are likely to be of the "listing" or "offering" type only. Such products are made by most of the large pharmaceutical houses of the country, and in the nature of the case there can be no element of monopoly in their manufacture. Competition thus assures sale at a financial return so small as to make it unprofitable for manufacturers to spend any large amount in an advertising campaign for the purpose of increasing the sale of the preparations. It is true, of course, that even this group gets the benefit of that human weakness of mistaking sequence for effect. This must be true of all drug products, even if they were not advertised at all, and in effect this peculiarity of medicaments is in itself advertising — inherent, silent and subtle.

1. Cramp, Arthur J.: Modern Advertising and the Nostrum Evil, Am. Jour. Public Health, October, 1918, p. 756.

GROUP 2: The scientific proprietary products advertised exclusively to the medical profession and comprising the second group will be found to rank in what may be called the highest class of "selling copy" advertising. The past twenty-five years has brought a marked change in the character of advertising of products of this class. A quarter of a century ago the medical profession was less critical of the claims made for products of this sort than it is today. It would accept with fewer questions the statements made by high-class manufacturers for their scientific drug products. On the other hand, the professional advertising "copy writers" had not been developed, and there was not, therefore, that tendency to exaggeration that exists under the modern system. The old-time advertisements, while based on less critical data than those demanded today, were comparatively free from the bombast and ill-suppressed hyperbole of the advertisements in the better class modern medical journals. In general, however, it may be said that the products making up Group 2 have, with a few exceptions, always been advertised with a due respect to truth.

GROUP 3: As might be expected, products in this group, unscientific products advertised to physicians, are advertised with little regard for scientific accuracy. The products themselves being unscientific and the manufacturers having a practical monopoly under our trademark law, there is every reason to expect exaggeration and misrepresentation in their sale. The advertising appeal is adapted, naturally, to the clientele to which the manufacturer caters. This nominally is the physician of the less discriminating type; actually, it is the layman reached through the physician. For this reason the preparation is put up in some distinctive form. The physician is always urged to prescribe the "original bottle," the inference being that otherwise a dishonest druggist will substitute some other preparation. The original bottle, and the "literature" that accompanies it, coming into the hands of the layman convinces him that he is as competent to prescribe the preparation as the doctor himself.

Such physicians as prescribe unscientific proprietaries are satisfied with unmeaning generalities relative to the composition of such products. A few years ago, before the medical profession had been aroused to the fact that many published formulas for proprietary remedies were utterly fraudulent, it was no uncommon thing for manufacturers of this type of medicaments to publish formulas which were either meaningless or bore no relation to composition. Some would even give weird and imposing structural chemical formulas for their products; these, while laughable to chemists, might be counted on to mislead many physicians. All medical men in theory, and the better educated and more scientific members of the profession in fact, refuse to prescribe products whose composition is secret. There are, nevertheless, enough careless and thoughtless doctors to support a vast industry in these products of Group 3, many of which are essentially secret in composition. Many of these medicaments are little better than what are known colloquially as "patent medicines."

FACTORS MAKING FOR TRUTHFULNESS

Then began the campaign of education by *The Journal of the American Medical Association*, aided by the association's "Council on Pharmacy and Chemistry" and the findings of the Association's Chemical Laboratory. A year or two after *The Journal* began its propaganda for reform in proprietary medicines—an educational force that it continues to this day—there was born that great power for comparative righteousness in the drug field, the National Food and Drugs Act. The latter laid the manufacturer who made false statements regarding the composition of his preparations open to prosecution—provided he made these statements on or in the trade package.

The result of these two forces, so far as they affected statements of composition of products in this group, was the elimination by the manufacturer of all specific statements bearing on this point. In some cases, however, where the medicaments contained one of the few drugs whose presence the national law requires to be declared on the label, there were brought about some curious verbal gymnastics. A widely advertised so-called medicated wine had been specifically advertised as not a cocain preparation; following the passage of the pure food law a legend appeared on the label to the effect that each ounce of the preparation contained a stated amount of cocain. Another unscientific medicament, which before the law went into force was recommended to physicians on the ground that by using it they could "avoid acetanilid poisoning," was forced to declare the presence of acetanilid. Various proprietary products alleged to be cod-liver oil compounds, but which, in fact, never contained any cod-liver oil, were forced by the exigencies of the Food and Drugs Act to be rechristened. A number of most ordinary mixtures of simple, well-known drugs, which, previous to the passage of the act, had been exploited as synthetic compounds of awe-inspiring chemical complexity, toppled from their high estate and the new trade packages were suspiciously silent on the subject of composition. In not a few instances products which, up until the time of the Food and Drugs Act, had been advertised exclusively to the medical profession for alleged prescription purposes only, immediately went over into the "home remedy" or "patent medicine" field. This was largely due to the fact that prosecutions under the new law verified the disclosures already made by *The Journal of the American Medical Association* so that even the uncritical physician was forced to reject the product because of its obviously unscientific character.

THE UNINFORMATIVE TRADE PACKAGE

In advertising preparations of this sort today the method is to say as little as possible about the composition or therapeutic action of the products, in or on the trade package. The advertising of a "selling copy" type is confined almost exclusively to those fields that are not subject to the legal restrictions of the Food and Drugs Act, such as the pages of commercially owned and operated medical journals. It is the advertising receipts from these products that keep alive a number of so-called medical journals whose demise would be a benefit alike to to scientific medicine and the public. The chief advertising asset of products of this sort is the testimonial, or, as it is more euphemistically termed, the "clinical report." These reports are descriptions of uncontrolled experiments from uncritical men. As scientific evidence, they have no more value than the testimony of the layman for the newest quack panacea.

The manufacturers of drugs of this group, while saying as little as possible regarding the composition of their products, attempt to shroud in mystery what little they do say. A widely advertised proprietary poultice whose chief ingredient is dried and finely powdered clay, is described as being composed of "anhydrous and levigated argillaceous mineral." A certain brand of aspirin is described, not as acetylsalicylic acid, but as "the monoaceticacidester of salicylicacid."

GROUP 4: In this group—proprietaries of the home remedy type, or the so-called "patent medicines"—truth in advertising is conspicuous chiefly by its absence. All the elements that foster falsehood and exaggeration in the advertising of the drugs in Group 3 are present in this group, with the additional element of a purchasing public which is totally undiscriminating because of its ignorance of the elements involved. As the purchaser of products of this group is also the user, there is added a factor

which has brought discredit and disrepute on the entire "patent medicine" industry. That factor is fear through suggestion. Unscientific and misleading advertisements of the drugs in Group 3 cannot be charged with having directly affected the persons who take these drugs. Not so the advertisements of products in the present group. The "patent medicine" maker flourishes by playing on the fears of the public. As one nostrum maker put it, in a burst of candor, when urging druggists to stock his product:

"Fully 75 per cent. of all cough and kidney remedies are bought by people who THINK they have consumption or some serious kidney ailment . . . and not by people who actually have them."

When John Doe pays a dollar for a bottle of Dr. Quack's Quick Cure he does not realize that from one-half to three-fourths of his dollar goes to pay for the manufacturer's efforts to convince him that he is suffering from some ailment for which the Quick Cure is a panacea. The least expensive thing about the average "patent medicine" is the medicine. The most expensive thing is the advertising which creates the market for the medicine. As one "patent medicine" maker, high in the councils of his organization, once put it:

"The twenty thousand newspapers of the United States make more money from advertising the proprietary medicines than do the proprietors of the medicines themselves. . . . Of their receipts, one-third to one-half goes for advertising."

Here one has, then, out of the mouths of those who know, the admission that fully 75 percent. of those who purchase certain types of nostrums are merely neurotics who *think* they are suffering from the ailments that these nostrums are supposed to cure. From a similarly authoritative source comes the admission that from one-third to one-half the cost of a "patent medicine" goes for newspaper advertising alone; to say nothing of the cost of the millions of "almanacs," window displays, circulars and other publicity features used in the business. It is no far-drawn inference that the three people out of every four who purchase "patent medicines" because they *think* they are ailing have been made to so think by the vast and utterly disproportionate sums spent on advertising these nostrums.

THE ADVERTISING APPEAL.

In advertising "home remedies" the style is adapted to the clientele sought. To the intelligent neurotic a subtle and cleverly worded appeal is made to convince him that a glorified cottage cheese mixture originating in Germany, patented and sold under an imposing trade-marked name, is a "re-creator of lost health" with "specific nerve tonic action." To the farmer a cruder message is carried. "Scare" pictures "tell the story" that every passing soreness in the lumbar region is a symptom of incipient Bright's disease, for which "kidney pills" of a certain brand are a sure-fire remedy. To the tired housewife comes the alluring vision of new energy to be derived from some Female Tonic of alleged vegetable origin, whose virtues as a "repeater" are really due to the very definite alcohol content of the nostrum and the very indefinite promises of the exploiter. Still cruder is the picture conjured up in the mind of the youth with thoughts dwelling abnormally on his sexual apparatus, by the fearsome and horrific descriptions that make up the advertising stock-in-trade of the exploiter of nostrums for "lost manhood."

Yet even in the "patent medicine" field there has been improvement in advertising. The very stench of this Augean stable of the advertising world has resulted in some effort to cleanse it. Three factors have been potent in bringing about some betterment in the advertising ethics of the makers of home remedies. First, the searchlight of publicity turned on the business by the medical profession through *The Journal of*

the American Medical Association and other medical publications, as well as by some of the better lay magazines and papers. Second, the activities of the federal authorities in enforcing the National Food and Drugs Act. Third, the work of the Better Business Bureau of the Associated Advertising Clubs of the World and of other organizations interested in truthful advertising and alive to the fact that every fraudulent advertisement menaces all advertising by destroying public confidence.

ELEMENTS OF REFORM.

The first factor—public education through publicity—while slower in its action, is more lasting in its results. With all due respect to the opinion of the late Mr. Barnum, the public does not like to be humbugged. It is humbugged to the extent that it lacks knowledge, and in the realm of therapeutics the public's ignorance is broad and deep. By turning the light on the methods of the nostrum vendors, by lifting the veil of secrecy which is the "patent medicine" maker's chief asset, the medical profession has given facts which have sunk deep into the public consciousness and which the public has not failed to take to heart. The Food and Drugs Act, which prohibits "false or misleading" statements regarding the composition or origin of a drug product and "false and fraudulent" therapeutic claims has done much to remove some of the cruder falsehoods. Its weakness lies in its limitations which confine its penalties to the statements made in or on the trade package. The newspaper advertisement, the "almanac" or the circular, in fact the very publicity avenues that sell the "home remedy" are, in fact, subject to no law regarding the truth or falsity of the claims made. It is true that, theoretically, most of the states have on their statute books laws prohibiting fraudulent advertising, but, insofar as these laws apply to "patent medicine" advertising copy they are to all intents and purposes a dead letter.

But the federal law has brought about marked changes in the trade package. An "Indian Cough Cure" which was neither "Indian" nor a "cure," becomes a "Cough Remedy." A "Cure for Consumption" becomes "A Medicine for Coughs, Colds, etc." A "Walnut Juice" hair dye, which contained no walnut juice, becomes a "Walnut Tint" hair stain. A "Sure Cure for Falling of the Womb" becomes a product that is merely "Recommended for the Treatment of Non-Surgical Cases of Weaknesses and Disorders of the Female Generative Organs." An "Infallible Remedy for Consumption" becomes, by virtue of the power of the federal government, a mere "Tonic Appetizer and Aid to Digestion."

The change in many instances has been, it is true, a change in the letter rather than in the spirit. The "lie direct" has been discarded for the "lie with circumstances." Inferential rather than direct falsehood characterizes many of the claims on the trade packages today. In other avenues of advertising not subject to the penalties of the Food and Drugs Act there is many a fraudulent claim. One can with almost mathematical accuracy determine the falsity of modern "patent medicine" advertising: Subtract the claims made on the trade package from those made elsewhere; what remains—and the residuum will be large—is falsehood!

SUMMARY.

Summed up, it may be said that the advertising of non-proprietary drug products is invariably truthful and conservative; the advertising of scientific proprietary drug products sold for prescription purposes only also, in general, conforms to the truth, with occasional lapses due to over-enthusiastic copy writers. The advertising of unscientific proprietary products offered nominally to the medical profession, but virtually to the public, is invariably exaggerated

and misleading and, in some instances at least, fraudulent. The advertising of proprietary products offered directly to the public, that is, of so-called "patent medicines," is notorious for its untruthfulness, not alone in its declaration, but also in its inference.

What is the remedy? For the untruthful advertising of drug products of Group 3—unscientific mixtures offered nominally to the medical profession—relief must be looked for in the better education, and its accompanying discrimination, of the physician of the future. The higher standard of medical education, both in the medical course itself and in the pre-medical educational requirements, will in time automatically bring about the extinction of the unscientific proprietary remedy offered to the medical profession. These factors are already at work. Each year shows a diminution in the number of drug products of Group 3. They either go out of existence entirely or frankly join the ranks of Group 4, the "patent medicines."

The outlook for any radical change in advertising methods of Group 4—the "patent medicines" is not, from the standpoint of public interest, so hopeful. The education of the public will continue to bring about a toning down of the cruder claims made for "patent medicines," and this agency for reform will be aided by the forces at work in the advertising field making for greater truthfulness. The fundamental evil of the "patent medicine" business will continue to exist, however, so long as proprietaryship and secrecy of composition continue as the controlling factors of the industry. Every physician knows that the number of drugs or drug combinations that are needed to fill the legitimate need for self-treatment on the part of the public is extremely small, and such needs can be amply filled from official products already on the shelves of every druggist in the country. The place of the hundreds of laxative "patent medicines" now on the market could be filled adequately, and with greater safety, by half a dozen official drugs. The same holds true for "patent medicines" sold for other conditions that come within the scope of legitimate self-drugging. So long, however, as the individual putting out a "patent medicine" has a proprietary monopoly in his product, he must as a commercial proposition stimulate the sale of his preparation, first, by making claims that are wholly unwarranted, and, second, by creating an artificial demand for his particular preparation by playing on the fears and imaginations of the public. Under such conditions it is hopeless to expect anything approximating truth in advertising.

□

Sanatorium Treatment of Tuberculosis.—The author defines the conditions under which the sanatorium can carry out its functions to the best advantage and produce good results. *(a)* The cases admitted should be either in an early stage of the disease, or, if more advanced, have been found by observation in a chest hospital to have a reasonable prospect of being made fit for work. *(b)* Treatment should be prolonged, either in the sanatorium or first in the sanatorium and then in the colony. Instead of two, three or four months, the recognized period of institutional treatment should be six, twelve or eighteen months. *(c)* The patient should be free from financial worry regarding the maintenance of his dependants during his treatment. *(d)* Some relief to the inevitable monotony of sanatorium life should be afforded by well directed schemes for providing a choice of congenial occupations for the patient, preferably one from which he can derive some financial benefit himself, or by which he can earn his living.

GEOGRAPHICAL AND SEASONAL VARIATIONS IN INFANT MORTALITY IN THE UNITED STATES, 1917-1920

FREDERICK S. CRUM, PH.D.

Assistant Statistician, The Prudential Insurance Company of America, Newark, N. J.

Read before Section on Vital Statistics, American Public Health Association, at San Francisco, Cal. September 15, 1920.

How to reduce infant mortality is one of the most pressing health problems of today. More babies saved means larger adult population. Dr. Crum establishes standards whereby to measure future improvement. His charts disclose irregularities related to season or location. They suggest means of closer study through separation of racial statistics.

THE present paper is a partial revision and continuation of the paper entitled "Infant Mortality in the United States During One Year of War," which was read before the Vital Statistics Section, American Public Health Association, at Chicago, December 11, 1918, and published in the American Journal of Public Health, Vol. IX, No. 4, April, 1919. In the meantime, the 1920 populations of the 46 cities included in the earlier and the present papers have become available and the estimates of infant populations made in 1918 have been revised on the basis of the new, official Census figures. The changes affect principally the four cities included in the Central Atlantic group and the seven cities included in the Western group. For the Central Atlantic group, as a whole, the population estimates made in 1918 were too low, making the infant mortality index* too high; and the population estimates made in 1918 for the Western group, as a whole, were too high, making the infant mortality index too low.

The revised basic index (no index for any week of the normal year 1917-1918 falling below this figure) for the Central Atlantic group of cities is 90.0 as against 100.0 according to the earlier estimate; and the revised basic index for the Western group of cities is 55.0, as against 50.0 in the earlier estimate. A comparison of the charts in the earlier papers with those presented here will show that the changes are of relatively slight importance in the weekly seasonal indexes and the general trend of the seasonal curves are not, of course, affected in the least, this being dependent upon the actual number of infant deaths as reported by telegraph weekly to the Census Bureau.

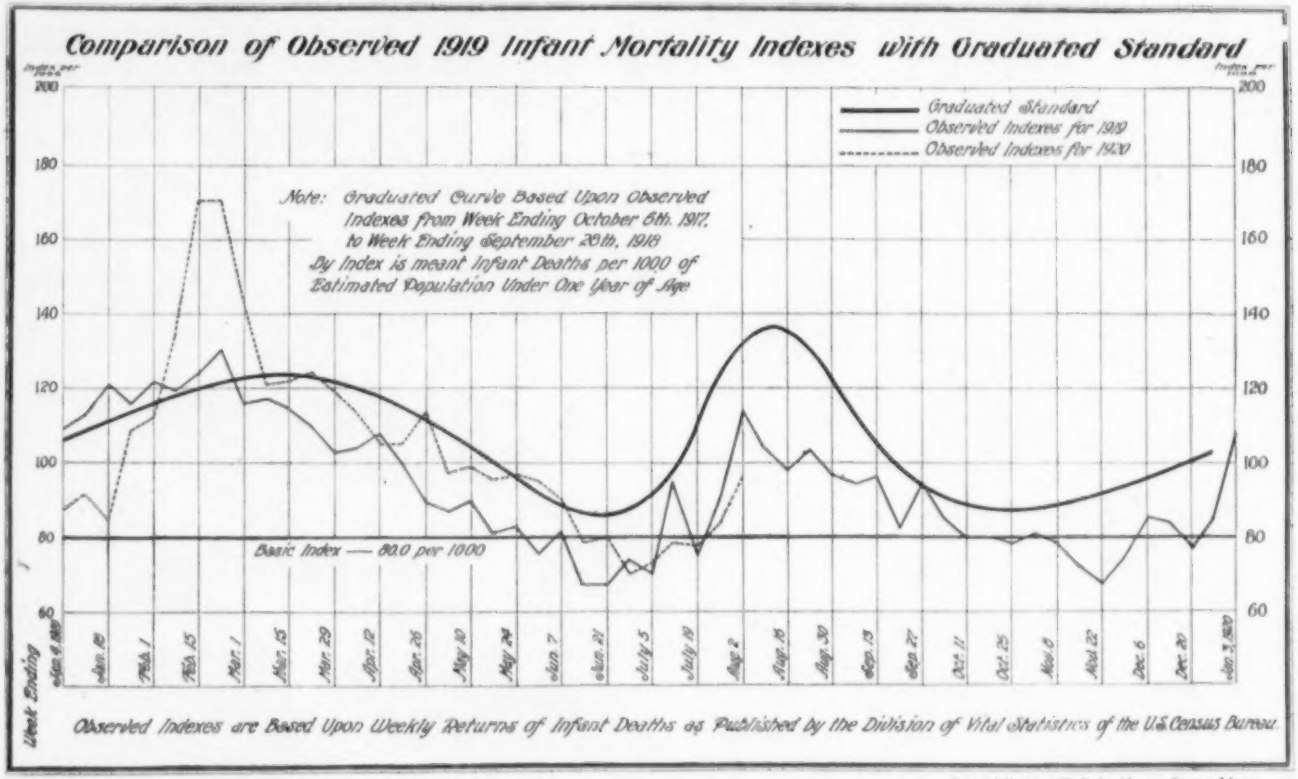
*The term "index" will be used throughout this paper to express the infant mortality per 1000 of estimated population under one year of age. Infant mortality rate has come to mean infant deaths per 1000 births, the deaths and births being for the same period—week, month or year, as the case may be. For comparative purposes the "index" as here determined is probably as accurate, if not more so, than the "rate" as births are nowhere so completely reported as deaths and the variation in the completeness of birth reporting is considerable, even in the large American cities.

TABLE I

Comparative Infant Mortality of 46 Large American Cities

Cities	Year Ending September 28, 1918: Estimated Population Under 1 Year	Reported Deaths Under 1 Year	Index or Deaths per 1,000 Est. Pop. Under 1 Year
North Atlantic:			
Albany	1,688	224	132 7
Boston	14,823	2,011	135 7
Buffalo	10,365	1,547	149 3
Cambridge	2,405	251	104 4
Fall River	3,318	625	188 4
Jersey City	6,789	814	119 9
Lowell	2,435	483	198 4
Newark, N. J.	9,856	1,067	108 3
New Haven	3,527	411	116 5
New York	126,362	11,593	91 7
Philadelphia	37,546	4,748	126 5
Pittsburgh	13,601	1,915	140 8
Providence	5,428	667	122 9
Rochester	5,182	563	108 6
Syracuse	3,043	454	149 2
Worcester	3,782	432	114 2
Total	250,150	27,805	111 2

Infant Mortality — North Atlantic Cities


Comparison of Observed 1919 Infant Mortality Indexes with Graduated Standard
Graduated Standard
Observed Indexes for 1919
Observed Indexes for 1920
Note: Graduated Curve Based Upon Observed Indexes from Week Ending October 6th, 1917, to Week Ending September 20th, 1918
By Index is meant Infant Deaths per 1000 of Estimated Population Under One Year of Age
Basic Index — 80.0 per 1000
200
180
160
140
120
100
80
60
Week Ending
Observed Indexes are Based Upon Weekly Returns of Infant Deaths as Published by the Division of Vital Statistics of the U.S. Census Bureau.

Statistician's Department, The Prudential Insurance Company of America

Chart No. 1.

Central Atlantic:			
Atlanta	4,148	380	91.6
Baltimore	12,812	2,036	158.9
Richmond	3,244	476	146.7
Washington	6,903	844	122.3
Total	27,107	3,736	137.8
Southern:			
Birmingham	3,747	431	115.0
Louisville	3,902	432	110.7
Memphis	2,660	298	112.0
Nashville	2,263	267	118.0
New Orleans	7,630	888	116.4
Total	20,202	2,316	114.6
Middle Western:			
Chicago	58,343	6,093	104.4
Cincinnati	6,626	735	110.9
Cleveland	18,469	1,800	97.5
Columbus	3,520	410	116.5
Dayton	2,781	251	90.3
Grand Rapids	2,815	217	77.1
Indianapolis	4,908	536	109.2
Kansas City, Mo.	4,648	514	110.6
Milwaukee	9,373	1,077	114.9
Minneapolis	6,577	594	90.3
Omaha	3,004	251	83.6
St. Louis	13,685	1,265	92.4
St. Paul	3,990	365	91.5
Toledo	4,475	484	108.2
Total	143,214	14,592	101.9
Western:			
Denver	4,001	397	99.2
Los Angeles	7,880	577	73.2
Oakland	3,611	214	59.3
Portland	3,694	328	88.8
San Francisco	7,233	475	65.7
Seattle	4,384	299	68.2
Spokane	2,048	136	66.4
Total	32,851	2,426	73.8

In Table I are presented the comparative infant mortality indexes (infant deaths per 1,000 estimated population under one year of age) for the year ending September 28, 1918, and on the basis of the Census populations of 1910 and 1920. The proportion of the total population of ages under one year is assumed to have been the same as in the Census of 1910, as the 1920 populations with distinction of age are not yet available. According to this summary the lowest index was for Oakland, Calif. (59.3) and the highest index was for Lowell, Mass. (198.4). Other relatively low infant mortality indexes in the normal year ending September 28, 1918, were 65.7 for San Francisco, Calif., 66.4 for Spokane, Wash., 68.2 for Seattle, Wash., and 73.2 for Los Angeles, Calif. In the cities of the Middle Western group Grand Rapids, Mich., had an index of 77.1 and Omaha, Neb., the relatively low index of 83.6. New York City had the lowest infant mortality index (91.7) of any city in the North Atlantic group; and Atlanta, Ga., had the lowest index (91.6) of any city in the Central Atlantic group. In the Western group no one of the seven cities had an infant mortality index as here calculated as high as 100.0, while in contrast not one of the five cities of the Southern group had an index as low as 110.0, the average being 114.6, with no wide departures from that average in any city of the group. In the North Atlantic group Fall River, Mass., like Lowell, had a very high index (188.4), while Buffalo and Syracuse, N. Y., also had relatively high indexes of 149.3 and 149.2, respectively. In the Central Atlantic group of four cities the highest index was for Baltimore, Md., or 158.9, but Richmond, Va., also had a relatively high index for this group, or 146.7. Table I should be a valuable standard or norm by which to measure the subsequent improvement, or otherwise, in the infant mortality of the various cities, 46 in number, embraced therein.

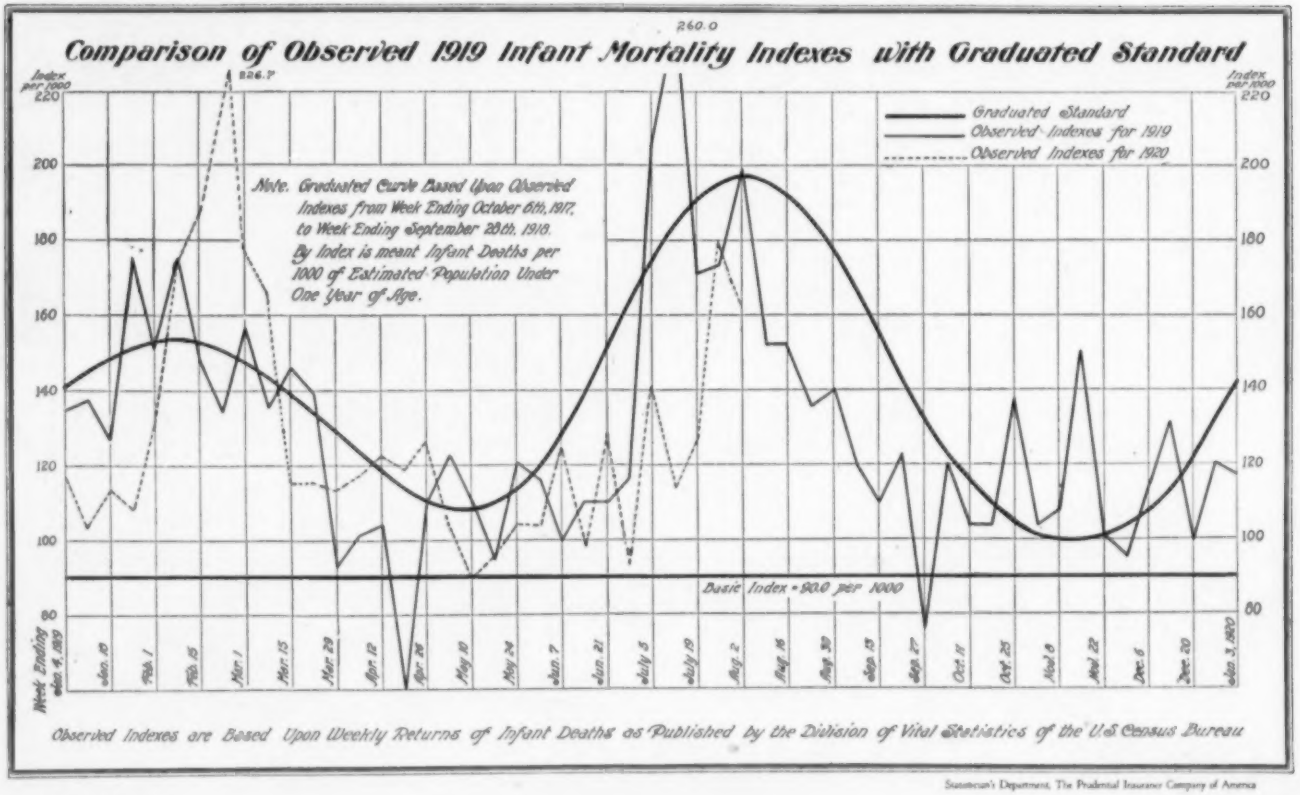
TABLE II

Comparative Infant Mortality of 46 Large American Cities
Year Ending December 27, 1919

Cities	Estimated Population Under 1 Year	Reported Deaths Under 1 Year	Index or Deaths per 1,000 Est. Pop. Under 1 Year
North Atlantic:			
Albany	1,718	174	101.3
Boston	15,057	1,813	120.4
Buffalo	10,626	1,398	131.6
Cambridge	2,420	200	82.6
Fall River	3,322	417	125.5
Jersey City*	6,894	647	101.6
Lowell	2,455	385	156.8
Newark	10,107	867	85.8
New Haven	3,625	301	83.0
New York	129,342	10,630	82.2
Philadelphia	38,419	3,769	98.1
Pittsburgh	13,793	1,630	118.2
Providence	5,553	514	92.6
Rochester	5,397	470	87.1
Syracuse	3,138	358	114.1
Worcester**	3,891	360	94.3
Total	255,757	23,933	93.8
Central Atlantic:			
Atlanta	4,297	359	83.5
Baltimore	13,293	1,715	129.0
Richmond	3,349	410	122.4
Washington	7,167	702	97.9
Total	28,106	3,186	113.4

*Data available for only 48 weeks.
**Data available for only 51 weeks.

Infant Mortality — Central Atlantic Cities


Comparison of Observed 1919 Infant Mortality Indexes with Graduated Standard
260.0
226.7
Index per 1000
Graduated Standard
Observed Indexes for 1919
Observed Indexes for 1920
Note. Graduated Curve Based Upon Observed Indexes from Week Ending October 6th, 1917, to Week Ending September 20th, 1918. By Index is meant Infant Deaths per 1000 of Estimated Population Under One Year of Age.
Basic Index = 90.0 per 1000
Week Ending
Observed Indexes are Based Upon Weekly Returns of Infant Deaths as Published by the Division of Vital Statistics of the U.S. Census Bureau

Statistician's Department, The Prudential Insurance Company of America

Chart No. 2.

Southern:			
Birmingham	3,900	391	100.3
Louisville	3,929	389	99.0
Memphis	2,740	358	130.7
Nashville	2,287	272	118.9
New Orleans	7,776	715	91.9
Total	20,632	2,125	103.0
Middle Western:			
Chicago	60,080	5,746	95.6
Cincinnati	6,720	615	91.5
Cleveland	19,342	1,513	78.2
Columbus	3,649	385	105.5
Dayton	2,886	279	96.7
Grand Rapids	2,896	237	81.8
Indianapolis	5,106	518	101.4
Kansas City, Mo.	4,800	523	109.0
Milwaukee	9,638	1,010	104.8
Minneapolis	6,790	520	76.6
Omaha	3,175	298	93.9
St. Louis	13,917	949	68.2
St. Paul	4,117	283	68.7
Toledo	4,694	440	93.7
Total	147,810	13,316	90.1
Western:			
Denver	4,105	357	87.0
Los Angeles	8,457	605	71.5
Oakland	3,787	211	55.7
Portland	3,808	325	85.3
San Francisco	7,435	502	67.5
Seattle	4,555	306	67.2
Spokane	2,047	120	58.6
Total	34,194	2,426	70.9

In Table II an effort has been made to calculate the infant mortality indexes of the same 46 cities for the year ending December 27, 1919. The striking feature in the comparison of Table II with Table I (both for 52 weeks, or a full year) is the almost uniformly lower indexes disclosed in Table II. This is brought out clearly in the following summary, Table III, limited to a comparison of five geographical groups of cities:

TABLE III

Comparative Infant Mortality of Five Geographical Groups of 46 Cities

(Indexes or Deaths per 1,000 Estimated Population Under One Year)

Group	(1) Year Ending Sept. 28, 1918	(2) Year Ending Dec. 27, 1919	Decrease Actual	Decrease Per-centage
North Atlantic	111.2	93.8	17.4	15.6
Central Atlantic	137.8	113.4	24.4	17.7
Southern	114.6	103.0	11.6	10.1
Middle Western	101.9	90.1	11.8	11.6
Western	73.8	70.9	2.9	3.9

How much of this favorable showing for 1919 was due to the splendid organization work of the Federal Children's Bureau initiated in 1918 in co-operation with the Council of National Defense it is impossible to say, but it must have been in part responsible for these favorable results. The comparatively low 1919 indexes may in part have been due also to the influenza epidemic in the last four months of 1918, which affected the infant mortality adversely and intensively for short periods during the last three months of 1918, and only to a much lesser degree in the early months of 1919, with the exception of the group of Western cities. These facts will be discussed in more detail subsequently, and chart No. 5 visualizes the effects of the 1918-1919 influenza epidemic on infant mortality. The recurrent epidemic of 1920 also had an unfavorable effect on the infant mortality, but for shorter durations than in 1918-1919. See Charts 1, 2, 3 and 4.

In Table IV are summarized the infant mortality indexes (yearly basis) for the first 31 weeks of 1920. On the basis of the facts presented comparisons of the 1920 mortality with the normal year, 1917-1918, can readily be made for the individual cities as well as for the geographical groups. All of these group indexes are lower for the first seven months of 1920 than for the normal or standard year ended September 28, 1918, with the exception of that including the Western cities, which was 89.4 in 1920, against 73.8 for the year 1917-1918.

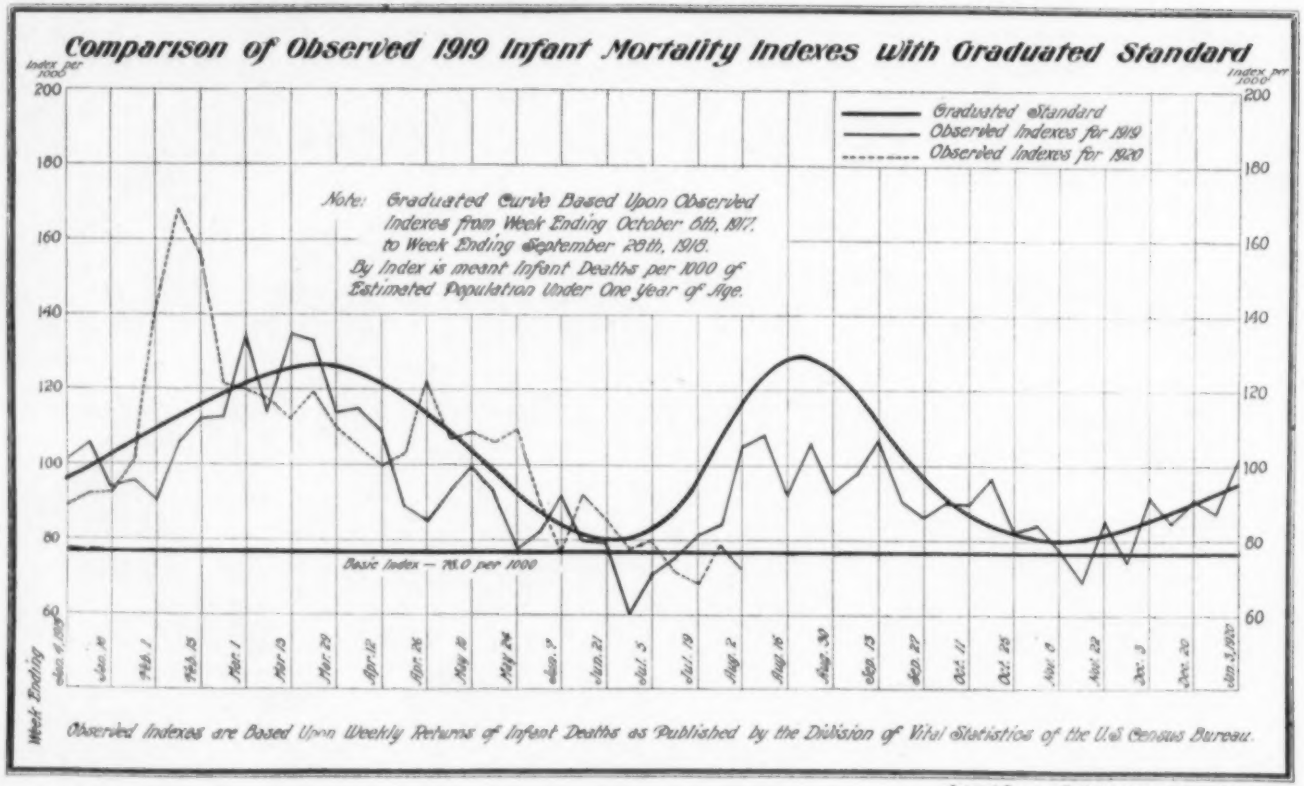
TABLE IV

Comparative Infant Mortality of 46 Large American Cities for 31 Weeks Ending July 31, 1920

Cities	Estimated Population Under 1 Year	Reported Deaths Under 1 Year	Index or Deaths per 1,000 Est. Pop. Under 1 Year
North Atlantic:			
Albany	1,728	109	105.9
Boston	15,135	1,224	135.7
Buffalo	10,713	819	128.2
Cambridge	2,425	155	107.3
Fall River	3,324	250	126.2
Jersey City*	6,229	449	124.9
Lowell	2,461	239	163.0
Newark	10,190	636	104.7
New Haven	3,657	232	106.4
New York	130,332	7,293	93.9
Philadelphia	38,710	2,344	101.6
Pittsburgh	13,857	1,005	121.6
Providence	5,594	344	103.1
Rochester	5,468	355	108.9
Syracuse*	3,169	234	128.0
Worcester	3,928	253	108.1
Total	256,920	15,941	104.2
Central Atlantic:			
Atlanta	4,346	294	113.4
Baltimore	13,454	1,138	141.9
Richmond	3,384	270	133.8
Washington	7,255	496	114.7
Total	28,439	2,198	129.6

*Data limited to 30 weeks

Infant Mortality — Middle West Cities



Statistician's Department, The Prudential Insurance Company of America

Chart No. 3.

Southern:			
Birmingham	3,949	322	136.8
Louisville	3,938	191	81.4
Memphis*	2,166	242	151.6
Nashville	2,294	187	136.8
New Orleans	7,824	505	108.2
Total	20,771	1,447	117.4
*Data limited to 30 weeks.			
Middle Western:			
Chicago	60,659	3,672	101.5
Cincinnati	6,752	408	101.4
Cleveland	19,633	937	80.1
Columbus	3,692	231	105.0
Dayton	2,921	177	101.6
Grand Rapids	2,983	188	105.7
Indianapolis	5,172	374	121.3
Kansas City, Mo.	4,850	422	146.0
Milwaukee	9,227	631	108.8
Minneapolis	6,861	371	90.7
Omaha	3,232	262	136.0
St. Louis	13,995	702	84.2
St. Paul	4,160	200	80.6
Toledo	4,767	294	103.4
Total	149,414	8,869	99.6
Western:			
Denver	4,139	274	111.0
Los Angeles	8,650	528	102.4
Oakland	3,845	179	78.1
Portland	3,846	184	80.2
San Francisco	7,503	339	75.8
Seattle	4,612	240	87.3
Spokane	2,047	108	88.5
Total	34,642	1,850	89.4

The effect on infant mortality of the 1918-1919 influenza epidemic was interesting. The indexes and the weekly curves seem to indicate quite clearly that in a large part the effect was indirect, that is, that the excess infant mortality was due largely to lack of care and that infant attack by the disease was not wholly responsible. In most cities the highest infant mortality indexes occurred when the epidemic was at its height in the given city or group of cities, but these high indexes dropped more quickly to normal than the adult death rates. Lack of mother's care, scarcity of nurses and physicians, and possibly other social and economic maladjustments probably brought about a considerable portion of the excess infant mortality during the influenza epidemic.

Table V presents the facts roughly indicative of the excess in the infant mortality during the influenza period, 1918-1919, but Table VI brings out the details week by week for the four groups of cities for which reliable data are available. This table, supplemented by Chart No. 5, gives a very complete picture of the effect of the influenza wave on infant mortality. In the North Atlantic cities the excess infant mortality was largest, followed by the Central Atlantic group. The Western group of cities came third, but there the unfavorable effect was longer drawn out than elsewhere, the cities in that group being so

TABLE V

Comparative Infant Mortality of 46 Large American Cities
For 22 Weeks Ending March 1, 1919

Cities	Estimated Population Under 1 Year	Reported Deaths Under 1 Year	Index or Deaths per 1,000 Est. Pop. Under 1 Year
North Atlantic:			
Albany	1,708	93	128.1
Boston	14,979	1,062	167.6
Buffalo	10,539	780	174.7
Cambridge	2,415	127	124.4
Fall River	3,321	225	160.0
Jersey City*	6,859	247	156.0
Lowell	2,448	228	220.1
Newark	10,023	507	119.6
New Haven	3,592	187	123.0
New York	128,352	5,883	108.3
Philadelphia	38,128	2,427	150.5
Pittsburgh	13,729	1,008	173.6
Providence	5,511	344	147.5
Rochester	5,325	273	121.2
Syracuse	3,106	218	166.0
Worcester**	3,855	133	99.7
Total	253,890	13,742	129.9
Central Atlantic:			
Atlanta	4,247	191	106.3
Baltimore	13,133	931	167.6
Richmond***	3,314	220	157.0
Washington	7,079	376	125.6
Total	27,773	1,718	146.2
Southern:			
Birmingham****	3,848	193	124.2
Louisville	3,920	219	132.1
Memphis***	2,713	98	94.0
Nashville	2,279	134	139.0
New Orleans	7,727	400	122.4
Total	20,487	1,044	123.0
Middle Western:			
Chicago	59,501	2,946	117.0
Cincinnati	6,689	342	120.9
Cleveland	19,051	648	80.4
Columbus	3,606	156	102.2
Dayton	2,851	137	113.6
Grand Rapids	2,869	110	90.6
Indianapolis	5,040	238	111.9
Kansas City, Mo.	4,749	213	106.0
Milwaukee	9,550	507	125.5
Minneapolis	6,719	250	88.0
Omaha****	3,118	174	138.1
St. Louis	13,840	510	87.1
St. Paul	4,075	150	87.0
Toledo	4,621	223	114.1
Total	146,279	6,604	106.8
Western:			
Denver	4,070	144	83.6
Los Angeles	8,265	360	103.0
Oakland	3,728	130	82.4
Portland	3,770	169	106.0
San Francisco	7,368	310	99.5
Seattle	4,498	183	96.2
Spokane	2,047	83	95.7
Total	33,746	1,379	96.6

*Data available for only 12 weeks.
**Data available for only 18 weeks.
***Data available for only 20 weeks.
****Data available for only 21 weeks.

Infant Mortality —Western Cities

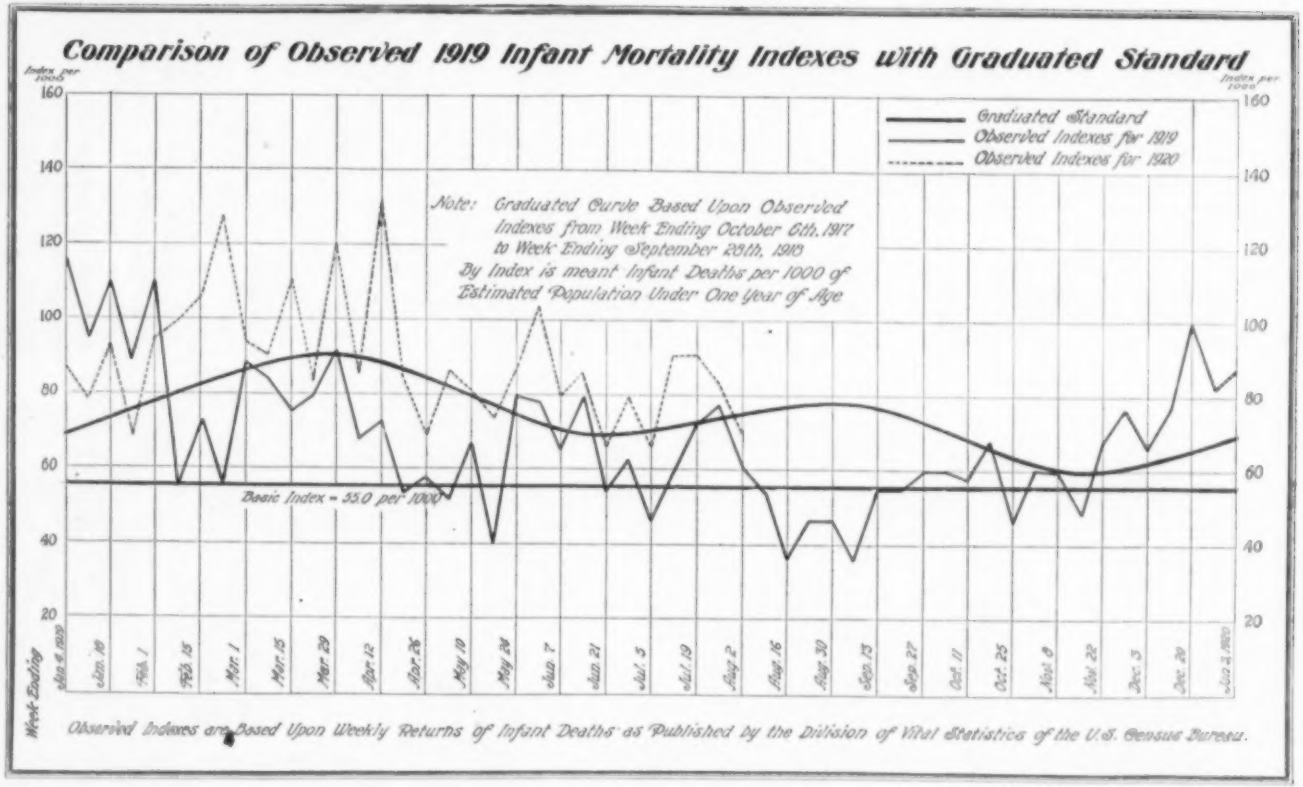

Comparison of Observed 1919 Infant Mortality Indexes with Graduated Standard
Index per 1000
Graduated Standard
Observed Indexes for 1919
Observed Indexes for 1920
Note: Graduated Curve Based Upon Observed Indexes from Week Ending October 6th, 1917 to Week Ending September 28th, 1918
By Index is meant Infant Deaths per 1000 of Estimated Population Under One Year of Age
Basic Index = 55.0 per 1000
Week Ending
Observed Indexes are Based Upon Weekly Returns of Infant Deaths as Published by the Division of Vital Statistics of the U.S. Census Bureau.

Chart No. 4.

Statistician's Department, The Prudential Insurance Company of America.

far apart, apparently the epidemic wave traveled slower in that section.

The most valuable part of this paper, in my judgment, are the five charts showing the weekly fluctuations in the infant mortality indexes for four geographical groups of cities. Unfortunately, the Southern cities could not be successfully charted because of irregularities, due probably to the fact that the white and colored infant deaths are not separately reported to the Census Bureau in the data here analyzed. The relatively high indexes and wide seasonal variations in the Central Atlantic group, may also be attributed in part to the large Negro element in the population of that group.

In the preparation of the data for charting and in the construction of the charts I am deeply indebted to Mr. Arne Fisher, who is almost solely responsible for that part, the most important, I think, of this paper. These charts are based upon the fact that infant mortality indexes by weekly intervals exhibit a cyclic periodicity. If the data here subjected to mathematical treatment (1917-1918 graduated curves) were available also with distinction of cause, it undoubtedly would be entirely feasible to plot the curves which would be typical of the geographical areas and of the seasons. Causes of mortality inherent in congenital debility would exhibit a very different series of curves than the respiratory and digestive causes. The last two groups are undoubtedly more affected by season. Even a casual study and comparison of these five charts will reveal the wide variations in infant mortality, due in large part to locality and season.

TABLE VI

Comparative Infant Mortality

Influenza Epidemic Period 1918-1919. Compared with 1917 Infant Deaths per 1,000 Estimated Population Under One Year of Age, Reduced to Yearly Basis

North Atlantic Cities

1917 (Standard) Week Ending	Index	1918 Week Ending	Index	Percent Increase 1918 over 1917
Sept. 22	97.8	Sept. 21	110.3	12.8
" 29	93.5	" 28	113.3	21.2
Oct. 6	90.6	Oct. 5	127.8	41.1
" 13	88.2	" 12	159.1	80.4
" 20	87.2	" 19	200.9	130.4
" 27	86.8	" 26	246.3	183.8
Nov. 3	87.1	Nov. 2	205.5	135.9
" 10	88.0	" 9	141.5	60.8
" 17	89.3	" 16	108.9	21.9
" 24	91.2	" 23	99.3	8.9
Dec. 1	93.3	" 30	93.7	0.4
Sept. 22-Dec. 1	90.3	Sept. 21-Nov. 30	146.1	61.8

TABLE VII

Central Atlantic Cities

1917 (Standard) Week Ending	Index	1918 Week Ending	Index	Percent Increase 1918 over 1917
Sept. 22	160.9	Sept. 21	129.0	—19.8
" 30	149.5	" 28	145.9	— 2.4
Oct. 6	138.9	Oct. 5	164.9	18.7
" 13	129.5	" 12	245.2	89.3
" 20	121.5	" 19	372.1	206.2
" 27	115.1	" 26	380.5	230.6
Nov. 3	111.1	Nov. 2	205.1	84.6
" 10	109.1	" 9	135.3	24.0
" 17	108.9	" 16	122.6	12.6
" 24	110.8	" 23	129.0	16.4
Dec. 1	114.5	" 30	80.3	—29.9
Sept. 22-Dec. 1	124.5	Sept. 21-Nov. 30	191.8	53.3

TABLE VIII

Middle Western Cities

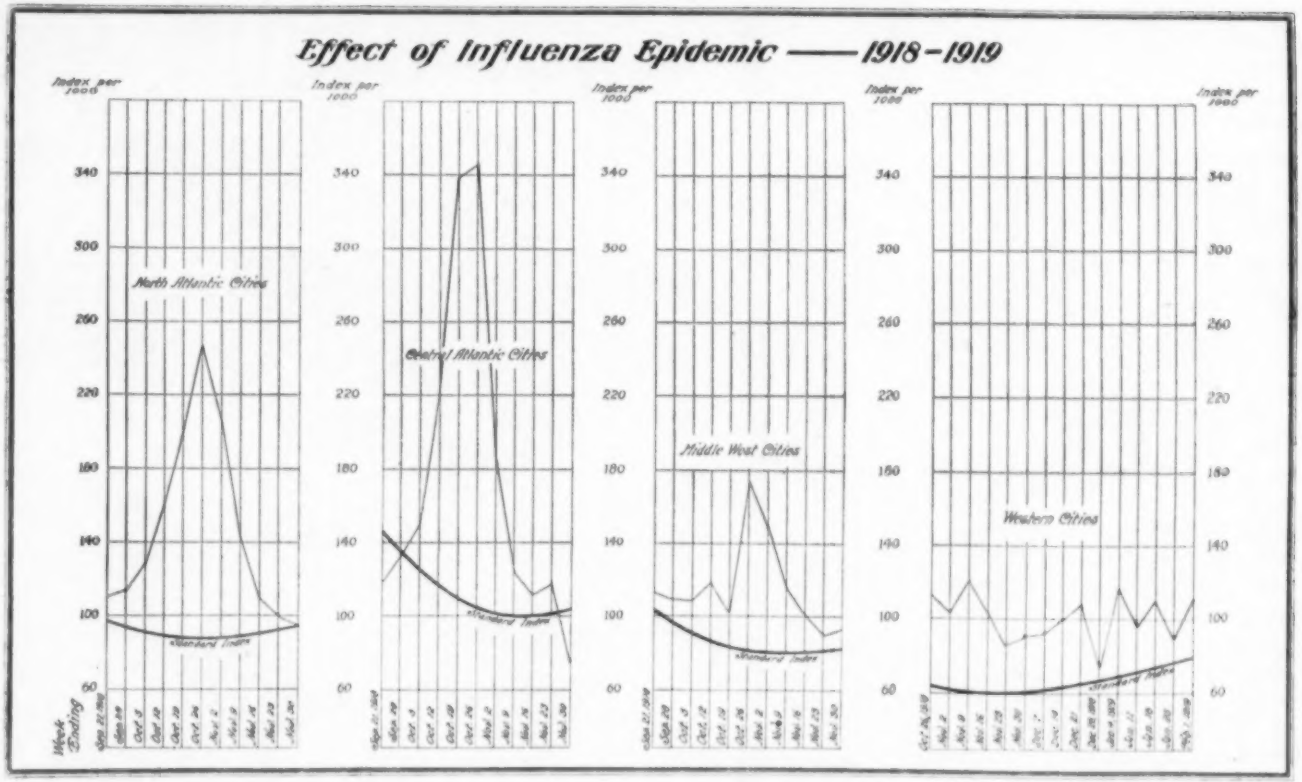
1917 (Standard) Week Ending	Index	1918 Week Ending	Index	Percent Increase 1918 over 1917
Sept. 22	103.4	Sept. 21	112.2	8.5
" 29	94.4	" 28	107.9	11.9
Oct. 6	90.8	Oct. 5	107.9	18.8
" 13	86.7	" 12	117.1	35.1
" 20	83.8	" 19	100.9	20.4
" 27	81.8	" 26	174.4	113.2
Nov. 3	80.7	Nov. 2	148.2	83.6
" 10	80.2	" 9	124.2	54.9
" 17	80.4	" 16	101.3	26.0
" 24	81.4	" 23	89.8	10.3
Dec. 1	82.7	" 30	93.9	13.5
Sept. 22-Dec. 1	86.2	Sept. 21-Nov. 30	116.2	34.8

TABLE IX

Western Cities

1917 (Standard) Week Ending	Index	1918 Week Ending	Index	Percent Increase 1918 over 1917
Oct. 20	65.3	Oct. 19	67.8	3.8
" 27	62.9	" 26	112.6	79.0
Nov. 3	61.1	Nov. 2	102.5	67.8
" 10	60.0	" 9	119.8	99.7
" 17	59.4	" 16	102.5	72.5
" 24	59.5	" 23	85.1	43.0
Dec. 1	60.2	" 30	89.5	48.7
" 8	61.6	Dec. 7	92.4	50.0
" 15	63.1	" 14	99.6	57.8
" 22	64.9	" 21	108.2	66.7
" 29	66.8	" 28	73.6	10.2
Jan. 5	68.9	Jan. 4	115.4	67.5
" 12	71.1	" 11	95.2	33.9
" 19	73.4	" 18	109.7	49.5
" 26	75.6	" 25	88.0	16.4
Feb. 2	77.9	Feb. 1	109.7	40.8
		Oct. 19, 1918, to		
Oct. 20-Feb. 2	65.7	Feb. 1, 1919	98.2	49.5

Infant Mortality Statistics



Statistician's Department, The Prudential Insurance Company of America

Chart No. 5.

EDITORIAL SECTION

AMERICAN JOURNAL OF PUBLIC HEALTH
Publication Office: 124 W. Polk Street, Chicago, Ill.
Editorial Office: 169 Massachusetts Ave., Boston, Mass.

A. W. Hedrich, C. P. H., Editor J. Ritchie, Jr., Associate Editor

Editorial Assistants

E. R. Hayhurst, M.D. P. M. Holmes, M.D. Francis H. Slack, M.D.
David Greenberg James A. Tobey James M. Strang
M. P. Horwood, M.S. Homer N. Calver

Board of Advisory Editors

Peter H. Bryce, M.D., Ottawa, Canada Prof. M. J. Rosenau, Boston, Mass.
Charles V. Chapin, M.D., Providence, R. I. Prof. W. T. Sedgwick, Cambridge, Mass.
Eugene R. Kelley, M.D., Boston, Mass. Prof. George C. Whipple, Cambridge, Mass.
W. A. Evans, M.D., Chicago, Ill. Prof. S. M. Gunn, Paris, France.

All expressions of opinion and all statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

NOTICE TO SUBSCRIBERS: Subscription Price, payable in advance, $4.00 per year for United States and possessions; $4.50 for Canada and other foreign countries. Single copies, 50 cents postpaid. **Membership** in the American Public Health Association, including subscription to Journal, $5.00 per year. **In Change of Address** please give both old and new address, and mail before the tenth of the month to take effect with the current issue. **Mailing Date,** 5th of each month. **Advertisements** accepted only when commendable, and worth while both to reader and advertiser. **News Items,** interesting clippings and illustrations are gladly received, together with name of sender. **Copyright, 1919, by A. W. Hedrich.**

HEELS AND TOES

One may well look at the feet of our women on the street and ask, "Are we in civilized America in the twentieth century or is it mediæval China with women's feet constricted and distorted?" The heels and the toes that fashionable shoes present should set the sanitarian to thinking.

It is not in America alone or merely now that these problems present themselves. At the beginning of the war, before this country became interested to the extent of taking a part in it, Dr. A. Ritschl, a German, voiced in the periodical literature of the day the following sentiments of disapproval: "But how badly the feet are treated by a majority of our people, partly from ignorance, partly through foolish vanity, by shoes too short or too narrow, with heels too high. What misshapen and deforming shoes they dare offer our women and girls even in this grave time of war, when it is the duty of every one to make himself strong and efficient." He further comments on conditions as they then existed by saying, "A glance at the people moving in a city street shows that crowds of these have bitten at the injurious bait." Dr. Ritschl goes on to discuss the high-heeled, narrow shoe from the anatomical and medical points of view. He also comments on the heel that is too low.

The condition that set this German physician to thinking is the rule, almost, in this country. The streets of all our cities witness great crowds of women and girls shod in injurious foot gear. It is not that men have not injurious and insanitary fashions, but at the moment it is the high heel and pointed, wedge shaped toe, that are under discussion. High heels on the street furnish another example of what has been termed "the American failing of diamonds at breakfast," and while they may be demanded for a short while as a portion of party adornments, they are obviously out of place on the street. But they are there and furthermore are worn by women in occupations requiring continuous standing, by shop girls, restaurant waitresses, elevator attendants and factory employees.

It is important in this connection to realize that more and more it is known and taught that the human body is a connected whole, and local causes for what appear to be local ailments are less and less sought. "What affects one part of the body affects the whole" is an expression of the thought of today.

America is essentially a mechanical nation and the false mechanics of the high heel should appeal to every thinking individual. The principles of the arch apply equally well whether the structure be of stone and mortar or bone and muscle. The main arch of the foot supports great weight, the entire weight of the body, and it is important that the stresses be properly provided for and that the arch have a firm foundation. The high heel really violates both these principles; it shifts the strains and changes the foundation to an insecure one. Watch a French heel strike the sidewalk. See how uncertain it is when it comes into contact with the walk, see how it "wobbles" before coming to rest, and see how, even then, the lines of support are not the vertical ones of natural posture.

The tilted arch means undue strain somewhere, the indecision of the step means strain somewhere, and the final posture of rest means still other strains brought to bear on muscles not intended for the work. The high heel means disarrangement of the regular lines of support of the body above the foot. Every engineer knows that compensations are necessary. When the elevated heel throws the knee forward to maintain a comfortable angle at the ankle, it is balanced by a backward-tilted thigh and this again demands a forward-leaning backbone and body. Instead of the upright figure that is normal for the support of the weight, this is upheld by a line broken at three points, a mechanical disadvantage. Be these departures from natural conditions ever so small, they mean unfortunate leverages and the calling into play of muscles not intended for the work.

The toboggan slide of the sole upheld at one end by the high heel needs no discussion for those conversant with mechanics. It is inevitable that the foot, impelled by the weight of the body, slide down the inclined plane of the sole till restrained by the toe-end or the sides of the shoe. If deliberate intention had sought to create continuous inconvenience and final injury to the foot, it could hardly have hit upon a more cunning device for the purpose. It is no use to urge the well-known plea, "They are perfectly comfortable and miles too wide," for the mechanical conditions are there and injury will inevitably follow. Then of course there are important medical conditions in distortion and constriction to be considered, in which the foot is not the only sufferer.

It is a well-known military maxim that an army is as good as its feet and one especial care in the late war was to have the American soldier well fitted to shoes. Some original invention made this possible in a minimum of time. For the first time in the country the scientific measurement of the feet was undertaken for very large companies of men, and from these measurements it developed that half to three-quarters of the men of the country were wearing shoes from half a size to two sizes too small. This difficulty, so far as the army is concerned, was corrected in the interests of efficiency. The reports prove, however, that the men of the United States have not given the attention to their feet that good health and efficiency demand.

The person, man or woman, whose ability to walk is for any reason handicapped runs the risk of falling into a vicious circle. He loses the amount of exercise requisite for good health, and ill health tends continually to lessen the already insufficient measure of exercise.

There is much more in the proper shoeing of a nation than appears at first sight. In an enlightened age the feet are truly worthy of sane and proper treatment. Care of the feet demands today in good measure the attention of popular educators in public health.

QUARANTINE OF THE CRETIC

The Cretic incident in the port of Boston involves important principles of public health. It would appear that the steamship arrived in Boston without technically perfect health papers from the port of sailing. The crew of the steamship objected, it is said, to the practices and requirements of the quarantine officers. If the public press is to be credited, there was talk of withdrawing the steamer from the port in future sailings. This, however, has not been done. The matter of the stringency of the quarantine administration was discussed by the Boston Chamber of Commerce and it is said that a telegram of complaint was sent by it to Washington. The situation, whatever it may have been in reality, displays the need of information to various parties of what quarantine really means.

The story of the quarantine service in Boston is not without interest. Developed as a local enterprise, carried on for a good many years under the supervision of Boston's health department, it had the reputation of being second to none in the country in quality of administration. One by one the ports on the Atlantic and Gulf states came under Government quarantine supervision, with Boston and New York alone outstanding. Six or seven years ago in the interests of complete standardization of quarantine regulations, Boston made over its quarantine of the National Government, and it was presumed that the management in New York would be likewise standardized.

The bubonic plague and other Oriental infections are knocking at our doors. The tremendous movement of men from all quarters of the earth has focussed in middle Europe maladies heretofore endemic in Asia or Eastern Russia. Infectious diseases are nearer this country than ever before. The plague has made its appearance in a number of our Southern ports, and other undesirable diseases are known to be running in European cities of the Mediterranean and Baltic. Never before in the world has this country been called upon to exert so close a watch over its immigrants and incoming shipping as now.

It is not a new story for business to interest itself in quarantine. California has had an experience of the kind that should be a lesson to every other section of the country. It is a matter of history that commercial interests refused to acknowledge the existence of the plague on the West Coast until it had gained such a foothold that the results are with us yet. It is important that a similar mistake be not made elsewhere. The health of the people is of more consequence than the business of the few, and it is unfortunate that proper official acts should find criticism through the press.

The Boston Transcript, editorially, speaks of the relationships between business bodies and Governmental quarantine functions in these words, showing a firm stand on good and true health principles: "If the health officer of the port of Boston has been enforcing the laws passed by Congress for the protection of the public health with diligence and intelligence, he has been doing his duty as an officer of the Government. . . . In the discharge of that duty he deserves the whole-hearted support of the people of Boston, and the nation to which Boston is one of the chief gateways. . . . On this account it is to be hoped that the Surgeon General of the Public Health Service will not jump to the conclusion that the Boston Chamber of Commerce speaks for all the people of Boston in its telegram of complaint against alleged quarantine discrimination at this port. If Dr. Bryan, the representative here of Surgeon General Creel, has been derelict in duty, why did not the Chamber of Commerce so report? If he has not been derelict why does the Chamber of Commerce, instead of supporting him, appeal for an investigation of his office? What are the facts in the case? They should be published before the name of Boston is used in a way to weaken his authority."

It is most important that official business bodies and representatives of the press view the question of quarantine as a uniformly acting Government Service designed for the protection of the health of the nation.

BOOKS AND REPORTS REVIEWED

A National Plan for Health Service. *Report of the [English] Consultative Council on Medical and Allied Services.*

No country or great body of people has laid out or adopted for itself any well thought out or comprehensive scheme of universal service in curative and preventive medicine. This, in spite of the fact that there have been made in many countries broad and general applications of scientific knowledge in the industrial, agricultural and economic fields. The field of health is as yet, however, largely untilled and this condition exists in face of the tremendous strides that have been made in the last few decades by medical and sanitary science. Medical men and public health workers everywhere are beginning to realize that the day is past for a haphazard application of scientific principles to cure the ills of the race. Progressive men and women in our field are thinking about and looking forward to the time when for this country and perhaps for the world there will be put into operation an intelligent and all-including plan that may logically attack the problems of disease prevention and cure, infant welfare and depleted vitality.

It has fallen to England to take the first step in this direction. This country now has a plan for a systematized health and medical service established on a basis of locality but applicable area for area to the whole kingdom. The plan is given in the interim report of the Consultative Council on Medical and Allied Services, to the British Ministry of Health. The *Lancet* for May 20th and the *Medical Officer* of the same date outline and quote extensively this report. The document first prepares the reader for a complete pattern of organization designed to meet the needs of any community and notes the facts that have created this need. Medical services are classified into (1) those which are domiciliary as distinct from those which are institutional and (2) those which concern the section of the population and not the sick individuals. The periphery of the proposed scheme is constituted by the preventive and curative services which revolve around the home, such as those of the doctor, dentist, nurse, druggist or midwife. Various other "communal" services, preventive and curative are brought together to form one organization in an institution called a health center. The domiciliary services of a given district are based on a local health center. Patients retain their own doctors but have in addition the advantage of an institution conducted by the general practitioners of the district in conjunction with an efficient nursing service and the aid of visiting consultants and specialists.

Just as a group of homes is based on a local health center, so a group of these centers is based on a primary health center. Here is extensive equipment and specialized personnel. A third institutional element enters into the scheme, namely a teaching hospital having a medical school. The hospital would receive cases of unusual difficulty and in addition the special departments and laboratories of the hospital would be courts of reference and would lead and inspire special services of the health centers attached to it.

The Report is evidently a lengthy one but it brings out several points of interest to health workers in this country. Not the least of these is the plan laid down for a new type of health authority to bring about unity of local control for all health services both curative and preventive. It is suggested that the "health authority" be invested in a body which is either a statutory committee of the existing local government or an independent body. Three-fifths of the members of this committee are to be elected by popular vote, the remaining two-fifths to consist of persons whose special knowledge would be of value in health questions. A majority of these should be nominated by the local medical advisory council. This council should consist of 10 to 20 persons elected periodically by and from the registered practitioners resident in the area. The health officer and his two chief assistants should be ex-officio members of this advisory council.

The plan outlined is comprehensive as well as extensive.

Whether or not it will be adopted remains to be seen. In any event the present report is not final. Regardless of these considerations, however, the fact remains that the time is not far off when in America it will be necessary to take cognizance of the lack of a uniform health service and to adopt a plan which will supply a uniform all-including program for the present dilatory methods and palliative measures which now exist.—*Homer N. Calver.*

✣

The Human Costs of the War. *Homer Folks, Harper & Brothers, 1920. 326 pages. Illustrated.*

Colonel Homer Folks as organizer and director of civil affairs for the American Red Cross in France and later as Special Commissioner to southeastern Europe, had an opportunity afforded to few to estimate at first hand the toll in sickness, suffering and death exacted as a part of the price of the world war. From his previous wide experience in public health and social economics, he was unusually well qualified to undertake such a task of human bookkeeping. Under the above title the author describes his investigations in detail.

Starting from France on Armistice Day, Col. Folks and his party made a survey of the war-stricken countries for the purpose of estimating the net results of the conflict on human welfare and of reporting how best the conditions found could be met.

The countries visited included Serbia, Belgium, France, Italy and Greece. In each of these countries the attempt was made to secure at first hand the actual facts regarding the condition of the people in respect to food, clothing, housing, health, including the ravages of the various communicable diseases, and also the number of widows and orphans left dependent as a result of the war.

Some conception of the terrific conditions facing the stricken countries can be gathered from the author's estimates that 10,000,000 people are homeless as a result of the war; that 42,000,000 more were subjected to the indignities and deprivations of enemy rule, that 9,000,000 soldiers died of wounds or disease; that there are 50,000,000 manless homes and 10,000,000 homes without children, where there would have been children under normal conditions.

The somber subject matter of the book is lightened by the power of the author to portray the scenes of desolation and the ghastly facts in a manner that holds the interest of the reader.

As the author is a prominent public hygienist his report of conditions in the devastated regions will be of particular interest to other workers in this field.—*B. R. R.*

✣

Medico-Military Review. This is a mimeographed publication of 15 to 20 pages, issued semi-monthly as a supplement to the Bulletin of the Surgeon General's Office. It was established December 1, 1919, and has a circulation of 750 distributed to reach all officers of the Medical Department of the Army. The circulation list also includes a few civilians, medical libraries, and medical journals, which have requested the addition of their names to the mailing list.

The Review is edited by the Division of Laboratories and Infectious Diseases of the Surgeon General's Office and serves as a medium through which news items of current interest, especially those of a medico-military nature, and information bearing upon the problems of disease control, abstracts of important articles appearing in Medical Journals and notes on investigations being carried on in the Army, can be placed in the hands of officers of the Medical Department. Each issue contains a statistical report of the U. S. Army hospital bed capacity and current admission rates of the important communicable diseases.

✣

Healthy Living. *Books I and II. Charles-Edward Amory Winslow, D.P.H. Enlarged edition. Each with a chapter by Walter Camp. New York and Chicago: Charles E. Merrill Co. $0.84 and $1.12 respectively.*

When Professessor C.-E. A. Winslow wrote his little books on healthy living two or three years ago they were recognized at once as a wide departure from the stereotyped form of text book on health and hygiene. They appealed especially to the younger generation, although grown-ups were by no means excluded, through the novel presentation of the various subjects, the topics being the central thoughts of

well-written little stories rather than of condensed paragraphs. Interest of children, for example, is excited in the preparation made by the knights of old who in their training were taught to conserve health and strength for their future great work. Chapters on clothing impress the children with the relation of garments to health; classic stories of achievements of strong men are narrated to induce the young of today to preserve their health; and suggestions are made with reference to exercises and the methods of keeping in training.

Under the heading, "Fuel for the Body," children are told of the values of different kinds of foods, and it is thus early impressed upon them that the diet has most important duties in keeping the human machine going smoothly. In this connection, an ideal day's food in three meals is suggested. Through calling attention of the children to the teeth of the dog or cat, they are given a little lesson serving to show them that with their own different kinds of teeth, they are entitled to make use of both meat and grain foods. The value of good teeth, the necessity for cleansing them, and matters of like importance are emphasized by a little story of the "Battle of the Brushes," in which at a meeting one after another sets forth his rights to be chairman, the broom claiming that he bears the brunt of the day's work in the house, and the clothes brush and hair brush bringing forth their various merits, but the tooth brush finally being selected on account of its fundamental necessity.

Microbes, the mouth as a gateway to the body, the necessity for fighting the fly and mosquito, and the spread of germ diseases are topics considered in successive chapters, the spread of the germs being brought home to the children through a reference to the game of "Button, button, who's got the button." If the first boy put the button into his pocket, there would not be any game. In the same way, if the first child coming down with a disease were prevented from passing the germs to some one else, this would be practical prevention.

The second volume is of higher grade than the first, speaking from the school teacher's point of view. It considers more closely and intimately the living machine, the bony system, the circulatory system, the relation of air to health, the value of cleanliness, the necessity for pure water and good food, the fighting of insect pests, and the control of communicable diseases. How germs pass from mouth to mouth is discussed, and the illustrations show two little school girls doing their sums with the same pencil and each moistening the pencil in her mouth. Questions for discussion and review follow all of the chapters.

The volumes are well illustrated with pictures that appeal to the little student, and useful tables are a part of the second volume. For both of the volumes, Walter Camp has written a chapter on the relations of physical exercise to health, and other important additions have been made since the publication of the earlier volumes.

✣

Handbook on Health and How to Keep It. *Walter Camp. D. Appleton & Co. 1920. Pp. 210 and XIV. Price $1.50.*

Mr. Camp's book is written in an extremely interesting style. Far from being a prosaic list of rules for health, it abounds with interesting personal items illustrating the principles he presents. The five chapters are upon the following subjects: Problems of Youth and Age, Daily Dozen Set-Up, Reviewing Follies, Children, Schoolboy and Collegian and Industrial Workers.

The Daily Dozen Exercises were devised by Camp primarily for use in army and navy drills. Camp emphasizes that the important thing in exercise is to give the abdomen and thorax the most attention. The arms and legs, he says, get a fair amount of exercise anyway, even under sedentary conditions, whereas the vital organs ordinarily do not receive their fair share of exercise. Accordingly the daily dozen are devoted very largely to bending exercises of one kind or another.

Camp claims that 10 minutes per day with the daily dozen combined with 20 or 30 minutes of walking or other light exercise in the air, even the brain worker can maintain the best health, and cites the records of cabinet officers and other government officials who during the war labored at Washington, D. C., under the most strenuous conditions, but remained fit through the moderate exercise recommended.

A. W. H.

ASSOCIATION NEWS

HEALTH EMPLOYMENT BUREAU

HELP WANTED

Help-wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the first of each month. In answering keyed advertisements, please mail replies separately and to editorial office in Boston, Mass.

The Health Employment Bureau also sends lists of applicants to prospective employers without charge.

A Progressive Superintendent of Health for a city of 70,000 population. Salary $3,500. Experience necessary. Address Z. F. 388, care of this *Journal*.

Assistant Bacteriologist. Salary $1,800. Applicant must have college degree, graduate in medicine preferred. Apply to Commissioner of Health, Baltimore, Maryland, stating educational training, experience and references.

Medical Assistant for 75-bed Tuberculosis Sanatorium. Must be single, with experience in diagnosis of Tuberculosis. Salary $2,000, with increase in reasonable time to good man. Send credentials to Dr. James A. Price, Irene Byron Hospital, Fort Wayne, Ind.

POSITIONS WANTED

Position-wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the first of the month.

Will be at liberty to accept location as health officer or to do general sanitary and publicity work about October 1. Now have the rank of Major in Reserve Corp and commission in Public Health Service as P. A. Surgeon. Further details by correspondence. Address 128, W. W. E., care of this *Journal*.

Wanted: Position as Medical Inspector of Schools by a Woman Physician experienced in this work. California preferred. References. Address H. C. M., 126, care of this *Journal*.

A young woman, college graduate with one year of post-graduate work, wants a position as head of a laboratory. Experience in bacteriology, serology, and chemistry acquired in both hospital and Public Health work. Prefers location in Ohio, but all good offers considered. Address P. H., 130, care of this *Journal*, Boston address.

LIST OF NEW MEMBERS

Proposed for Election to the

A. P. H. A.

August 3 to September 7, 1920, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are in Light Face Type.

ALABAMA

J. D. Dowling, M. D., Birmingham.
A. D. Brown, Chief Sanitary Officer, Birmingham.
W. H. Godwin, M. D., Birmingham.
B. C. Howse, Sanitary Inspector, Fairfield.
H. T. McGhee, M. D., Pratt City.
H. G. Tuggle, Sanitary Inspector, Wylam.

CALIFORNIA

W. H. Kellogg, M. D., Berkeley.
Stanley B. Freeborn, State Board of Health, Berkeley.
Walter T. Harrison, M. D., Asst. Surgeon, U. S. P. H. Service, San Francisco.
Louis L. Williams, M. D., Asst. Surgeon General, U. S. P. H. S., San Francisco.

L. M. Powers, M. D., Los Angeles.
Elmer R. Pascoe, M. D., Assistant Health Commissioner, Los Angeles.

I. R. Bancroft, M. D., Los Angeles.
Mario Potts, R. N., Fresno.
Pauline J. Pitney, Supervisor of Nursing, Los Angeles.
Adelaide C. Brown, R. N., Oakland.

R. A. Archibald, Oakland.
Walter J. Stewart, D. V. S., M. D., Oakland.

S. P. S. Edwards, M. D., Ontario.
F. F. Abbott, M. D., Ontario.

W. M. Dickie, M. D., Sacramento.
F. O. Pryor, M. D., Health Officer, Santa Rosa.
Molly H. Orr, R. N., San Bernardino.

Mrs. F. C. Brunette, Salinas.
Edith G. Wadland, R. N., Salinas.

Mary L. Cole, R. N. San Francisco.
Lillien J. Martin, M. D., San Francisco.

William C. Hassler, M. D., San Francisco.
Lawrence Arnstein, Jr., San Francisco.
Helen C. Welch, R. N., San Francisco.

Agnes Walker, M. D., San Francisco.
Millicent Cosgave, M. D., San Francisco.

CONNECTICUT

Ettore Ciampolina, M. D., New Haven.
Mudr Ladislav Prochazka, Prague, Czecho-Slovakia.

Philip S. Platt, New Haven.
Frank E. Platt, Scranton, Pa.

A. W. Hedrich, Boston, Mass.
John H. Hoover, M. D., Health Officer, Voluntown.

FLORIDA

Ralph N. Greene, M. D., Jacksonville.
John M. Whitfield, M. D., Panama City
L. C. Hamblin, M. D., Tampa.
Eddie L. Morress, Perry, Taylor County.
A. W. Hedrich, Boston, Mass.
A. C. Hamblin, M. D., Tampa.

GEORGIA

H. N. Old, Thomasville.
John Schreiber, M. D., County Health Officer, Thomasville.
A. W. Hedrich, Boston, Mass.
American Red Cross, Dept. of Civilian Relief Library, Atlanta.

IDAHO

A. W. Hedrich, Boston, Mass.
Emery M. Roller, Moscow.

ILLINOIS

W. A. Evans, M. D., Chicago.
James M. Dinnen, M. D., Ft. Wayne, Ind.
John Dill Robertson, M. D., Chicago.
E. A. Schlageter, M. D., Health Department, Chicago.
John C. Alford, Supervisor, Department of Health, Chicago.
Herman B. Meyers, Publisher, American Food Journal, Evanston.
Martin M. Ritter, M. D., Chicago.
Moor Mud Baths, Atten. John Weber, Jr., Mgr., Waukesha, Wis.
Edmond A. Holberg, M. D., Supervising Health Officer, Chicago.
Paul Hansen, Chicago.
W. C. Clarke, M. D., Cain.
C. M. Roos, Water Works Superintendent, Cairo.
M. Kern, M. D., Chicago.
Henry M. Hollester, Chicago.
S. S. Winner, M. D., Chicago.
John C. Foley, M. D., Health Officer, Waukegan.
A. W. Hedrich, Boston, Mass.
Fred Wendell, Chicago.
W. J. Harding, Decatur.
Hugh S. Baker, City Milk and Dairy Inspector, Decatur.
Clyde S. Jones, M. D., East St. Louis.
Hampton W. Edwards, R. N., Poplarville, Ky.
W. J. Garard, M. D., Galesburg.
B. A. Harrison, M. D., Colchester.
A. W. Bouseman, M. D., Health Officer, Fountain Green.
Edith Y. Holstrom, Geneseo.
American Red Cross, Moline.
H. M. Bascom, Peoria.
George W. Burton, Peoria.
C. St. Clair Drake, M. D., Springfield.
J. J. Lahey, Madison.
Harold H. Roberts, M. D., Maywood.
Frank S. Needham, Commissioner of Health, Oak Park.
Department of Public Health, Springfield.

IOWA

Edyth Howerton, R. N., Esterville.
Hannah Sandquist, School Nurse, Marshfield, Ore.

MARYLAND AND DISTRICT OF COLUMBIA

Mrs. Francis K. Carey, Baltimore.
Emily B. Baily, Baltimore.
Charles J. Bonaparte, Baltimore.
Helen H. Carey, Associate Director Children's Playground Ass'n, Baltimore.
Mrs. Franklin P. Cator, Baltimore.
Mrs. Benjamin W. Corkraee, Baltimore.
B. Howell Griswold, Jr., Baltimore.
Mrs. Francis M. Jencks, V. P. Women's Civic League, Baltimore.
W. H. Maltbie, Baltimore.
James H. Preston, Baltimore.
Provident Hospital, Baltimore.
L. Wardlew Miles, Head Master, Gilman County School, Baltimore.
Mary Gordon Thom, Baltimore.
Miles White, Jr., Baltimore.
Richard J. White, Trustee, Johns Hopkins Hospital, Baltimore.
Louisa McE. Fowler, Head of St. Timothy's School, Catonsville.
Mrs. James Findlay, Hagerstown.
Civic League, Sugar City, Colo.
Mrs. William A. Perry, New York City.
Roscoe G. Brown, M. D., Washington.
Aidrich R. Burton, M. D., U. S. P. H. S. Lecturer, Washington.
Major Wm. H. Lloyd, M. C., Camp Meade.
Arthur G. Coumbe, M. D., Washington.
Sol Pincus, Washington.
Joel I. Connolly, Lincoln, Neb.
Lieut. Alan Sutton, Washington.
Major P. F. McGuire, M. C., U. S. A., Army Medical School, Washington.
Major Samuel A. White, M. C., U. S. A., Army Medical School, Washington.
A. W. Hedrich, Boston, Mass.
National Canners' Association, Attention. Frank E. Gorrell, Secretary, Washington.

MASSACHUSETTS

A. W. Hedrich, Boston, Mass.
O. L. Boye, Sykehus, Bergen, Norway.

MICHIGAN

W. J. Deacon, M. D., Lansing.
S. R. Hill, M. D., State Department of Health, Lansing.
W. C. Hirn, Lansing.
Edmund H. Eitel, Highland Park, Ill.
J. Ritchie, Jr., Boston.
Michigan State Normal College, Atten. of E. McCrickett, Ypsilanti, Mich.

MINNESOTA

C. E. Smith, Jr., M. D., St. Paul.
G. W. Moore, M. D., Health Officer, Hopkins.
George A. Love, M. D., County Health Officer, Preston.

MISSISSIPPI

W. S. Leathers, M. D., University.
Dr. Petritch, New York City.

MISSOURI

C. W. Schery, M. D., St. Louis.
Charles M. Denison, M. D., Pathologist and Bacteriologist, St. Louis.
Dora J. Silverman, M. D., St. Louis.
A. W. Hedrich, Boston, Mass.
Laura E. Mann, R. N., Director of Nursing, Independence.

MONTANA

Clara A. Link, R. N., Red Lodge.
Bess E. Lawler, R. N., Kelso, Washington.

NEW JERSEY

E. M. Reilly, M. D., Montclair.
Bayard T. Garrabrant, Sanitary Inspector, Montclair.
Louis Schneider, M. D., Newark.
Francis E. Knowles, M. D., So. Orange.

NEW MEXICO

C. E. Waller, M. D., Santa Fe.
Gladys L. Harris, P. H. N., Albuquerque.
Harriet C. Moreno, R. N., Magdalena.
Hon. J. H. Wagner, State Supt. of Public Instruction, Santa Fe.

NEW YORK

Edward S. Godfrey, M. D., Albany.
John L. Rice, M. D., State Board of Health, Albany.
B. R. Rickards, Albany.
G. B. Clark, M. D., Health Officer, Armonk.
Jacob Gutman, M. D., Brooklyn.
Charles Norris, M. D., Chief Medical Examiner, New York City.
Louis C. Wood, M. D., Poughkeepsie.
Howard P. Carpenter, Director, Hudson River State Hospital Laboratory, Poughkeepsie.
Albert M. Bell, M. D., Health Officer, Sea Cliff.
George E. Hannett, Syracuse.
Clarence Goldsmith, Chicago, Ill.
Edward Clark, M. D., Buffalo.
W. H. Baker, M. D., State Health Officer, Williamsville.
J. A. Conway, M. D., Hornell.
J. H. Van Marter, Groton.
Halsey J. Ball, M. D., Glens Falls.
Walter A. Leonard, M. D., Health Officer, Cambridge.
John J. Mahoney, M. D., Jamestown.
Edwards J. Loughlen, M. D., Health Officer, Andover.
Jasper W. Coller, M. D., Health Officer, Wellsville.
George W. Roos, M. D., Health Officer, Wellsville.
Walter L. Dodd, New York City.
Mr. Harry P. Hammond, Sanitary Engineer, Brooklyn.
Mrs. Ethel M. Hendriksen, Rochester.
Isaac Adler, Rochester.
Willis W. Bradstreet, M. D., Health Officer, Rochester.
John F. Forbes, M. D., Rochester.
Mrs. Rose E. Stuber, Rochester.
A. W. Hedrich, Boston, Mass.
Herbert N. Shenton, Columbia University, New York City.
Eva P. MacDougall, New York City.

OHIO

Louise Sitzenstock and
G. E. Harmon, M. D., Cleveland.
Annie E. Irving, Superintendent of Nurses, Huron Road Hospital, Cleveland.
A. W. Hedrich, Boston, Mass.
H. C. Schoepfle, M. D., Department of Health, Sandusky.

OKLAHOMA

Ruth Frances Horel, Oklahoma City.
P. R. Horel, M. D., County Health Officer, Arcata, Cal.

PENNSYLVANIA

Lawrence M. Rosenfeld, Ph. D., Philadelphia.
Mr. K. Hobart Roatch, Clinical Chemist, Philadelphia.

RHODE ISLAND

B. U. Richards, M. D., Providence.
L. C. Clark, Providence.
Howard Edwards, LL. D., President, State College, Kingston.
Lester A. Round, Ph. D., and
Prof. F. P. Gorham, Providence.
Minot J. Crowell, Central Falls.

TENNESSEE

A. W. Hedrich, Boston, Mass.
J. J. Durrett, M. D., Superintendent of Health, Memphis.

UTAH

T. P. Beatty, M. D., Salt Lake City.
American Smelting & Refining Co., Atten. of Roy A. White, Salt Lake City.

VERMONT

Charles F. Dalton, M. D., Burlington.
C. B. Crowell, Brattleboro.

VIRGINIA

Robert A. Martin, M. D., Petersburg.
H. A. Burke, M. D., Venereal Clinic, Petersburg.
Claiborne Powell, City Physician, Petersburg.

WEST VIRGINIA

S. L. Jepson, M. D., Charleston.
C. A. Cabell, Carbon.
C. A. Pearse, Jochim.
G. K. Cabell, Wevaco.

WISCONSIN

W. W. Johnston, M. D., Racine.
Central Association, Atten. of Miss Kate Mender, Racine.
Edith C. Chandler, Exec. Secretary, Racine Chapter, A. R. C., Racine.
H. L. Wilson, M. D., Racine.
Catherine Pfister, Public Health Nurse, Racine.

CANADA

J. W. S. McCullough, M. D., Toronto Ont.
Institute of Public Health, Atten. H. W. Hill, M. D., London, Ontario.

PHILIPPINE ISLANDS

A. W. Hedrich, Boston, Mass.
Rafael Villafranca, M. D., District Inspector, Lucena, Tayabas, P. I.

CONVENTIONS, CONFERENCES AND MEETINGS

October 4-7, Pittsburgh, Pa.—Medical Society of the State of Pennsylvania.

October 4-7, Waterloo, Ia.—Tri-State District Medical Society.

October 4-8, Montreal, Can.—American Hospital Association.

October 4-10, Montreal, Can.—American Association of Occupational Therapy.

October 6-7, Providence, R. I.—New England Surgical Society.

October 6-8, Chicago, Ill.—American Association of Railway Surgeons.

October 7-8, Augusta, Me.—Maine Public Health Association.

October 7-8, Richmond, Va.—North Atlantic Tuberculosis Conference.

October 7-8, Rutland, Vt.—Vermont State Medical Society.

October 9, Ottawa, Can.—Canadian Association for the Prevention of Tuberculosis.

October 11-12, Wilmington, Del.—Delaware State Medical Society.

October 11-13, St. Louis, Mo.—American Child Hygiene Association.

October 12-13, Oklahoma City, Okla.—Oklahoma State Public Health Conference.

October 12-14, Chicago, Ill.—Mississippi Valley Medical Association.

October 15-16, Roswell, N. Mex.—New Mexico State Medical Society.

October 19-20, Omaha, Neb.—Nebraska State Nurses' Association.

October 20, Lakewood, N. J.—New Jersey Anti-tuberculosis League.

October 21, Montreal, Can.—Royal Edward Institute.

October 22-26, New York City—American Dietetic Association.

October 27, Albany, N. Y.—New York State Association of Public Health Laboratories.

October 28, Boston, Mass.—Massachusetts Association of Boards of Health.

October, Milwaukee, Wis.—Wisconsin Anti-tuberculosis Association.

November 8-11, Louisville, Ky.—Southern Medical Association.

November 13, Boston, Mass.—Massachusetts Society for Social Hygiene, Inc.

November 15, Louisville, Ky.—American Association of Medical Milk Commissioners.

November 20-23, San Antonio, Tex.—Texas State Conference Social Welfare.

November 22, Washington, D. C.—Association for the Prevention of Tuberculosis of the District of Columbia.

December 2, Providence, R. I.—Rhode Island Medical Society.

December 6, Petersburg, Va.—Medical Society of Virginia.

December 6-30, Washington, D. C.—Regional Health Conference.

December 12-20, Montevideo, Uruguay—Sixth International Sanitary Conference of the American Republics.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horwood, James A. Tobey and Homer N. Calver.

Public Health Surveys.—Dr. Harold B. Wood defines a public health survey as an accounting of the health conditions and needs of a community. The purpose of a health survey is to detect the presence and correlation of all conditions and factors affecting health, and to formulate practical and economical measures to decrease disease and increase comfort. A survey serves as a guide for city planning, municipal development, health activities, and charitable services. The scope of a health survey is outlined as follows:

Introduction—
- Brief historical outline.
- Geographical location.
- Geological formations.
- Racial settlements and distribution.
- General review of public health and physical efficiency.
- Industrial developments.

Vital Statistics—
- Population, growth and influencing factors.
- Birth and death rates, giving trend and reasons.
- Influencing factors and how to control them.
- Racial characteristics of birth and death rates.
- Reportable diseases, prevalence and rates.
- Methods of control and their effects.

Child Welfare—
- Prenatal influences, effects, solution.
- Infant mortality, factors, causes, and solution.
- Preschool problems.

School Children—
- Statistics, distribution, effect of location upon schools.
- Prevalence of diseases among school children, control.
- Medical inspection.
- School buildings and grounds.

Communicable Diseases—
- Statistics of outbreaks; sources and methods of control.
- Public protection against disease.
- Educational work done and needed.

Tuberculosis—
- Prevalence, factors, distribution, causes.
- Local modes of transmission, house influences.
- Dispensary effects and community needs.

Typhoid Fever—
- Prevalence, transmission, protection.

Venereal Disease—
- Dangers, prevalence, prevention.

Food Supplies—
- Conditions of production and storage.
- Adulteration and wholesomeness.
- Degree of inspection and results.
- Disposal of spoiled or poor foods.
- Prevalence of diseases among handlers.

Milk Supply—
- Amount, source, distribution, availability, safety and cleanliness, city standard bacterial counts, causes, variations, trend.

Water Supply—
- Source, safety, quality, distribution, protection, control, results.

Sewage Disposal—
- Methods, proportion, distribution, safety, local effects, treatments of sewage.

Garbage Disposal—
- Methods, desirability, nuisances, control.

Street Cleaning—
- Methods of collection and disposal of rubbish.

Personal Hygiene—
- Standards of living and effects.
- Overcrowding, housing conditions, tenementation.
- Condition and use of yards and lots.
- Parks and playgrounds.

Industrial Hygiene—
- Kinds, distribution and sanitation of factories.
- Occupational diseases: prevalence and control.
- Industrial accidents: prevalence and control.
- Sanitary improvements and social welfare.

Health Department:
- Development, methods of appointment.
- Divisions, efficiency and needs.
- Activities, methods, results obtained.
- Budget; distribution and needed changes.

Recommendations.

Modern Medicine, May, 1920—(*M. P. H.*)

Meningococcus Carriers. — The writers give the results of an investigation of 905 carriers who were examined and treated at the Army cerebrospinal fever center at Netley, between September, 1916, and April, 1919. Of the 905 examined, 86 (9.5 percent.) were case carriers after cerebrospinal fever, and 819 (90.5 percent.) were apparently healthy accidental carriers, who had not showed any signs of the disease. The case carriers remained infected for an average period of 5½ months, the longest period in any one case during which meningococci were observed being 634 days. Accidental, or healthy, carriers remained infected for an average period of 24 days, discharge from isolation being effected as follows:

9.3 percent of the healthy carriers were discharged during the first week, and for the second, third and fourth weeks the figures run 14.8, 17.2, and 15.3. Two succeeding fortnights give percentages of 12.0 and 11.3 respectively, the total for the eight weeks being 79.9 per cent.

Carriers were treated in various ways—in "inhalation chambers" with chloramine T and zinc sulphate, by hand-spraying with flavine and adrenalin, with chloramine in paraffin, and with "electrosal," and by the direct application of perchloride of iron and of mercuric ointment. It did not appear that any of the methods employed had any effect on the meningococci in the nasopharynx. It appeared, rather, that some of the forms of period. Seventeen of the carriers who were treated with either chloramine or zinc sulphate for a period of 102 days remained carriers at the end of the treatment; and cultures taken from the nasopharynx within half an hour of exposure to the "Levick Spray," with either drug, frequently yielded a pure growth of meningococci. The cocci, found in the nasopharynx of a carrier, did not tend to alter in type throughout the carrying period; amongst the 905 carriers a change of type was observed in only a single case.—D. Embleton and G. H. Stevens, *Jour. Roy. Army Med. Corps*, 1919, XXXIII, 312.—(*D. G.*)

✚

Standardization of Municipal Health Organization.—It is very doubtful whether it is desirable to standardize the organization and detailed activities of health departments. Very often there are variations in traditions, customs and other circumstances which make standardization not only impossible but undesirable. The fundamentals in public health work are the same for all cities and should be standardized. The best solution of a particular community's problem is a careful study of that problem, leading to a special plan to meet the particular conditions that prevail. As far as possible, however, health departments should attempt to divorce themselves from street cleaning, collection and disposal of refuse, housing inspection and plumbing inspection. They should, however, maintain supervision and control of these functions insofar as they affect the health and welfare of the people. In order to accomplish its aim to prevent disease, protect the public health, and eliminate corrigible physical and mental defects, a health department should have the following divisions: administration, vital statistics, child hygiene, industrial hygiene, communicable diseases, public health education, sanitary engineering, food inspection and hospitals and sick relief. The health officer should attempt as far as possible to coöperate with and utilize the voluntary and unofficial agencies in a community that are interested and active in promoting the public health. Very often these volunteer organizations are pioneers in health problems and can be used as experimental stations in public health work. It is important, however, that the health officer should be able to supervise all the health activities which go on in a community—Allan J. McLaughlin, M. D., *Public Health Reports, April* 30, 1920.—(*M. P. H.*)

✚

How to Tell Bad Canned Food.—A can, the contents of which is suitable for consumption, when opened should be free from swell or escaping gas. The contents should have the proper color, texture, odor for the product canned, and should be absolutely free from any form of offensive odor. All these things should be noted before the product is tasted.

On the other hand, if the vegetable, fish, meat, or fruit in the can smells and looks wholesome, as far as is now known there is no danger from its consumption. The home canner, therefore, can go ahead with her canning operations, feeling sure that her family will be safe from food poisoning if she observes the simple precautions.—Weekly News Letter, June 23, 1920, U. S. Dept. Agric.—(*J. A. T.*)

SERBIAN HEALTH POSTERS

This spirited poster, prepared for the Red Cross work in Serbia by the artist who designed the very attractive posters for the tuberculosis campaign in France under the coöperation of the International Health Board and the French Government, illustrates one of the means of attacking this disease in a stronghold. The idea of warfare is admirably carried on by the soldier rushing to attack the foes, while the method of dissemination from the sick man to the well soldier is shown above. The legend of the poster is the following:

TYPHUS
IS CARRIED FROM THE SICK
TO THE WELL
BY THE LOUSE
HE BITES THE SICK MAN AND THEN
INFECTS THE WELL

Then in the lighter letters to the left is the warning, "The trenches of the louse are the seams of the clothing," and below, again in large letters, "It is necessary to fight the louse."

The second poster is a lesson in cleanliness. The man bathing in the primitive tub of the Continent, with the kettle of hot water at hand with which to keep his bath hot, is surrounded by the legend, "To avoid typhus, get rid of lice." Then in lighter letters is the query, "How?" and underneath is the answer, "By plenty of bathing and washing of the clothing," illustrated by the woman at work with her laundry.

The question of typhus is not one that has disturbed the United States very much thus far, save on its tropical borders, but in the central European countries it is a very serious problem and one which the authorities since the beginning of the war have been endeavoring to solve.

These posters come to the Journal through the courtesy of Mr. Edward Stuart, till very recently in charge of the work in France.

STATE HEALTH NOTES—LEGISLATION

Canada, Opium and Narcotic Drug Act and Amendments.—Through the courtesy of J. A. Amyot, M. D., Deputy Minister, Canadian Department of Health, the JOURNAL is able to present a summary of the legislation in the province with reference to opium and narcotics.

Under the Act of 1911 provision is made for confining the use of opium and narcotic drugs to medicinal or scientific purposes and the sale of these drugs is confined to physicians, veterinary surgeons, dentists, bona fide wholesale druggists or retail druggists, or on prescriptions issued by physicians, veterinary surgeons or dentists for medicinal purposes, or when prescribed for the medical treatment of a person under professional care by such physician.

All druggists, wholesale and retail, are required to record the sale of these drugs in a suitable book.

Under this Act it is an offense for any person to smoke opium or to have in his possession opium prepared or being prepared for smoking. It is also an offense to export or attempt to export any narcotic drugs from Canada to a foreign country which prohibits their entry.

The drugs mentioned in the schedule to this Act are as follows: cocaine or any salts or compounds thereof, morphine or any salts or compounds thereof, opium, eucaine or any salts or compounds thereof.

In May, 1918, an Order-in-Council was passed under the War Measures Act restricting the importation or exportation of these drugs under license. This Order-in-Council was superseded on December 31, 1919, by an Act of Parliament perpetuating the licensing system. These licenses are issued for each individual shipment imported or exported and in the case of an import license is conditional on the importer taking an affidavit that he will report his sales of the drugs so imported under license, to the Department of Health at the end of each month.

When these reports are received in the Department they are carefully tabulated and show the quantity of drugs received by all druggists, physicians, dentists and veterinary surgeons. Where it is noticed that any of the persons mentioned receive what are considered abnormal supplies, the matter is further followed up and detailed statements are required showing the disposition of the drugs so received. In this way the Department is in a position to trace these drugs from the time of importation into Canada through the wholesaler, retailer and physician and find out exactly how the drugs were actually used or consumed.

It might be here mentioned that this system has been found to be very effective and the Department has been successful in reducing, by an enormous quantity, the amount of drugs imported into Canada as compared with the quantities imported during a similar period before the restrictions became effective. We have also been very successful in stamping out to a very large extent the practice of physicians prescribing these drugs to addicts simply to supply their appetite in this regard and not in an attempted cure of the habit. This system has also been the means of searching out those druggists who have been dealing illicitly in these drugs in the past.

At the recent session of Parliament a further Amendment to the Opium & Narcotic Drug Act was passed, which is to be proclaimed and become effective on September the 1st next. This Act goes much further than the previous legislation in dealing with the handling and control of these drugs in Canada.

Under the existing Act various penalties are provided for different offenses, as for instance persons dealing in these drugs other than those permitted by law: druggists furnishing drugs to persons other than on prescription: physicians prescribing drugs for other than medicinal purposes: persons found guilty of conducting opium dens: These offenses are all enumerated under different sections and the penalties vary from a maximum fine of fifty dollars to five hundred dollars or from three months imprisonment to a year according to the offense committed under the Act.

Under the new Act the offense is made the same and the penalties provided are a fine not exceeding one thousand dollars and costs and not less than two hundred dollars and costs, or to a term of imprisonment for one year, or to both fine and imprisonment.

In addition to requiring a license for each individual importation or exportation, all wholesale druggists and manufacturers and all retail druggists who manufacture narcotic drugs or preparations containing the same are required to obtain an annual license to deal in these drugs, and all druggists who do not manufacture and all physicians, veterinary surgeons and dentists are required to furnish the Department with a declaration stating that they are engaged in the sale or distribution of these drugs.

Provision is also made under the Act whereby all physicians, veterinary surgeons and dentists are required to furnish on request, any information under any regulation made under the Act with respect to the drugs received, dispensed, prescribed, given away or distributed. Refusal to furnish such information incurs a penalty of not more than one thousand dollars and costs or not less than two hundred dollars and costs or to a year of imprisonment, or to both fine and imprisonment.

In addition to requiring all druggists, wholesale or retail, and all manufacturers to keep a record of their sales of these drugs they will be required under the New Act to keep a record of their receipts showing from whom received and the quantity, etc., and the date. They are also required to keep a record of the quantity of narcotics used in manufacturing together with a record of the quantity of such preparations manufactured.

Under the new Act provision is made for the marking and packing of opium and narcotic drugs, which are intended for export, in such a manner as to denote clearly the contents of the packages.

The number of ports or places in Canada where these drugs may be imported or exported is limited.

Provision is made in this Act for the sale of preparations (without prescription) containing a limited quantity of narcotic drugs to the liquid ounce similar to the quantities permitted under the Harrison Narcotic Law of the United States, but such preparations are required to contain active medicinal drugs other than the narcotic in sufficient proportion to confer upon the preparation or remedy valuable medicinal qualities other than those possessed by the narcotic drugs alone, and further such preparations must have printed in a conspicuous place on the main panel or label on the wrapper of the bottle, box or container, the following warning,

"IT IS UNLAWFUL TO ADMINISTER THIS PREPARATION TO A CHILD UNDER TWO YEARS OF AGE AS IT CONTAINS (INSERT NAME OF DRUG) AND IS DANGEROUS TO ITS LIFE."

The schedule to the Act of 1911 has been amended by adding after the word "opium" —"Or its preparations, or any opium alkaloids or their derivatives, or salts or preparations of opium alkaloids or their derivatives."

✚

California.—Pasadena has just passed an ordinance which requires the physical inspection and medical examination of all food handlers, and provides for the exclusion of persons having active cases of tuberculosis, venereal disease and other communicable diseases from all occupations related to food production and handling. This is the first city in the state to follow the example of New York and other Eastern cities.

✚

Delaware.—The State Board of Health adopted in July a resolution requiring the tuberculin testing of dairy herds unless the milk be pasteurized. On and after August 1, 1920, no milk or cream shall be sold within the state unless it is pasteurized according to the regulations of the Board, or unless it is obtained from cows that have successfully passed the tuberculin testing within one year, the cows being numbered with non-removable ear tags and the records properly kept. A penalty is attached to violation of this regulation.

A further regulation provides that no person other than a duly licensed physician shall practice midwifery in the state unless such person shall be duly licensed as a midwife by the State Board of Health. The regulation demands a license every year and any person may make complaint of the incompetency of a midwife or the failure to report births. Persons desiring to obtain license are required to furnish suitable references as to cleanliness, education, character, and experience. A penalty is provided for failure to fulfill the requirements of the regulation.

New York.—Under the provisions of a law passed at the last session of the legislature, the Health Bureau, Albany, N. Y., became a separate department, on July 1. Dr. Clarence W. Buckmaster will be the Commissioner, with a salary of $5,000, and Dr. C. Umsted has been selected for Deputy, at a salary of $3,300.

There will be a number of changes in the new department, the most important of which will be the taking over by the Health Bureau of the Tuberculosis Commission.

The State Department of Health adopted in April a number of amendments to the sanitary code. The first of these adds encephalitis lethargica to the diseases requiring notification and divides the latter into two groups for convenience of administration: One the ordinary diseases, and the other the venereal diseases. Another amendment adds encephalitis lethargica to the diseases that are to be reported by physicians if they are found in dairy farms, and this disease has been added to the list of those in which persons who may not be removed without the authority of the board of health, for which placards must be posted, and for which opportunities for contact infection are forbidden. Children from the household are excluded from the schools, and the patient is subject to removal to a hospital, isolation, or restriction of movement. The disease is among those that will debar the person from the handling of foods, and carriers of the disease germs shall be subject to the special rules and regulations of the State Department.

A further amendment forbids firms, corporations, or authorities owning, in charge of, or in control of a lavatory or washroom in any hotel, lodging house, restaurant, factory, school, store, office building, railway or trolley station, or public conveyance by land or water, providing any towel for common use. The term "common use" here means for use by more than one person without cleansing.

✣

New York City.—The Board of Health of the city of New York has amended the Sanitary Code to include the forbidding of the use of any animal hair that has not been sterilized in the manufacture of brushes or cloth. The manufacturer of shaving brushes, tooth brushes, or other toilet brushes intended for human use shall cause his name or trademark, place of manufacture, and the word "Sterilized" to be permanently, clearly, and legibly painted or stamped on every such brush before offering it for sale in the city of New York. Provision is made that the word "sterilized" shall be safeguarded by the actual sterilization according to a process prescribed or approved by the Board of Health. No person in the city of New York shall sell or have in his possession with the intent to sell any brush which does not conform to this regulation. The Board of Health prescribes two processes of sterilization: Boiling the hair in water at a temperature of 212° F. for at least three hours; or placing the hair in an autoclave in which a ten-inch vacuum has been produced. Live steam at 15 pounds shall be kept up in the autoclave for three hours.

✣

North Dakota.—A recent pamphlet issued by the State Board of Health contains the public health laws of the state together with the rules and regulations of the State Board.

✣

Pennsylvania.—In the May issue of the *Pennsylvania Health Bulletin* the State Department of Health presents a *Synopsis of the Health Laws* of the Commonwealth. Three previous publications have dealt with the same laws, a *Digest of Health Laws* published in 1916 and two *Bulletins*, 97 and 103, issued in 1917 and 1919 respectively. The Digest and the Bulletins give the phraseology of the laws, while this Synopsis presents abstracts, noting the purpose of the law, referring to its place in the Acts, and outlining the penalties and naming the persons responsible and the courts before which any action should be brought. A second part of the *Synopsis* contains the regulations of the Advisory Board which have the force of law, while a third section includes the orders, rulings and instructions issued from the central office of the State Department of Health.

Legislation on Physical Education

In 1920 the General Assembly of Virginia, after passing a law requiring health examination, health instruction and the conduct of wholesome physical activities, has set aside $25,000 for the State Board of Education, to be used for physical education in the public elementary and high schools, and an equal sum for the State Board of Health, to be applied to child welfare and school medical inspection. County boards of supervisors and city councils are authorized to make appropriations for health examinations and physical education and the employment of school nurses, physicians and physical directors.

The General Assembly of Kentucky has enacted a law requiring the State Board of Education to draw up a course of study in physical education for all common schools, occupying periods of not less than thirty minutes each school day devoted to instruction in health and safety, physical exercises, and recess play. A manual for the use of all teachers in common schools will be prepared by the Superintendent of Public Instruction in coöperation with the State Board of Health. Normal schools supported wholly or in part by public funds shall contain one or more courses in physical education.

In Mississippi the legislature has passed a law which becomes operative as soon as Federal assistance is available. This law provides that all pupils in elementary and secondary schools, whether public, private or parochial, shall receive instruction in physical education as prescribed by the State Board of Education, which is given considerable latitude in drawing up regulations.

The National Physical Education Service of Washington has been active in the different states aiding the local organizations in their movements towards physical efficiency as a national asset.

✦

The JOURNAL requests State and Municipal Health Officers to send forward notes for this Section that can be helpful to other officials in similar positions. Exchange of experiences is a great educator.

STATE HEALTH NOTES—GENERAL

National and International.—The sixth International Sanitary Conference of the American Republics will be held in Montevideo, Uruguay, December 12-20, 1920, under the presidency of Dr. E. Fernández Espiro and the auspices of the Government of Uruguay. One of the features of the conference is to be a round-up of sanitary procedure and conditions in the republics represented. Each delegation is requested so send in a written memoir, accompanied by its abstract, to the Secretary of the Conference, 15 days before its opening. This memoir, which is for the information of other delegations, is to include the following items:

1. Sanitary laws, ordinances, and regulations imposed since the 5th Conference.

2. Adoption of the resolutions passed by the preceding conferences.

3. Enumeration of the contagious diseases which may have prevailed since the 5th Conference (in particular influenza), measures adopted to avoid its propagation, number of cases and deaths.

4. Considerations relative to the outbreak and development of bubonic plague; methods employed to combat it; their results.

5. Frequency of epidemic cerebrospinal meningitis, transmissible anterior poliomyelitis, and lethargic encephalitis.

6. Actual status of the combat against tuberculosis, yellow fever, malaria, trachoma, and ankylostomiasis.

7. Data relative to leprosy and the measures put in practice to prevent its diffusion.

8. Actual status of the combat against avariosis (venereal diseases).

9. Organization and operation of the service of disinfection. Work carried out.

10. Movement of population and rate of mortality during the last five-year period.

11. Water supply and sewerage service. Their extent.

12. Application of different systems of paving.

13. Organization and operation of the service of maritime sanitation.

14. Work of the Health Commissions of each one of the American Republics.

In response to a generally expressed desire for help in carrying on child welfare programs, the Children's Bureau of the U. S. Department of Labor has issued a set of outlines for the use of clubs and classes. These programs are comprised under five heads, the Community and the Child; Child Welfare in Rural and Village Communities; Care of the Mother, the Baby and the Young Child; Detailed Outlines on Infant Mortality, Children in Industry, Recreation, and Children in Need of Special Care; and Development and Present Status of Infant Welfare Work in Other Countries.

"What next?" is the question that thousands of bewildered children asked when the school doors closed behind them for the last time. An army of over 1,000,000 children between 14 and 16 years old, says the Children's Bureau, marches out of the schools each year to become wage earners. In a pamphlet entitled "Advising Children in Their Choice of Occupation and Supervising the Working Child" the Bureau tells what happens to these children and offers suggestions for helping them get the proper start in life.

The legal right to remain ignorant is annually granted to thousands of children in states where child labor and education laws are backward. According to an account of the administration of the Federal Child Labor Law soon to be published by the Children's Bureau, only 783 children out of 19,696 to whom certificates were issued, or less than 4 per cent, had attended or completed the eighth grade, though completion of the eighth grade is generally regarded as necessary to secure even the rudiments of an education.

✣

Venezuela.—This South American republic is quite up to date in its methods of informing the public with reference to pests that carry disease. One of the circulars recently published warns against the fly, using illustrations that follow the fly from the outhouse past the garbage can and the spittoon to the baby and the dinner table, while another is directed to the ratproofing of granaries and storage places for fruits and other foods.

Canada.—The Canadian Red Cross Society has awarded to Miss Jean E. Browne of Saskatchewan a scholarship of $1500 in public health nursing to be held for one year at the University of London, England. This and similar scholarships in other lands are one of the first fruits of the League of Nations. Miss Browne who goes as the representative of Canada, is an honor graduate of the Toronto Normal School and the General Hospital Training School for Nurses in the same city. In 1911 she organized the health work of the Regina public schools in Saskatchewan and since 1917 has been Director of School Hygiene for the Department of Education of that province.

✣

California.—California's highways are now marked by a new feature, the brilliant symbol of the American Red Cross showing plainly above first aid kits for those injured in accidents. Chapters in the foothill cities of Southern California have chosen intersections and dangerous stretches of roadway where accidents have been most frequent as the best locations for the first aid equipment.

✣

Colorado.—The University of Colorado in coöperation with the Colorado Fuel and Iron Co. during the school year of 1919-20 conducted two courses of four months each in public health nursing at the hospital of the Minnequa steel works with field experience in Pueblo and the near-by mining camps. The third course is under way, having begun September 20, and applicants were required to have come from accredited schools of nursing with the certificate of graduation, with limited numbers from senior classes of such schools. The courses are given by members of the University faculty and by other well known physicians and surgeons.

✣

Georgia.—Dr. M. A. Fort of Grand Bay, Ala., has been elected Commissioner of Health of Brooks County at Quitman, Ga.

Dr. J. D. Applewhite has resigned as Commissioner of Health of Lowndes County and has been elected Commissioner of Health of Clark County at Athens.

Dr. Eugene O. Chimene has been elected

temporary Commissioner of Health of Floyd County at Rome.

Dr. C. C. Applewhite, P. A. Surgeon U. S. Public Health Service, has been detailed to the University of Georgia for the purpose of establishing the School of Public Health and Hygiene with the medical department at Augusta.

Twenty-five counties have adopted the Ellis Health Law.

✚

Illinois.—A school of Diagnosis of Tuberculosis for acting assistant surgeons and local examiners engaged in the care of sick and wounded soldiers, has been established by the U. S. Public Health Service at Springfield. The school is conducted through the coöperation of the State Department of Public Health, the Illinois Tuberculosis Association, the Springfield Tuberculosis Dispensary and the Palmer Tuberculosis Sanatoria. Dr. George Thos. Palmer, Chief of the Division of Tuberculosis of the State Department of Public Health, is Director of the school. Courses covering a period of seven days of three sessions each, with classes limited to ten Service men will be given every other week till the end of autumn.

Through the coöperation of the State Department of Public Health, the State Department of Public Welfare, and the Illinois Society for the Prevention of Blindness, clinics for the diagnosis and treatment of trachoma have been established at Mount Vernon, Harrisburg, and Benton. These clinics are under the general supervision of Dr. E. V. L. Brown, representing the Illinois Society for the Prevention of Blindness.

The Better Babies Conference conducted by the State Department of Health has become one of the important features of the annual Illinois State Fair. This Conference has grown from a small beginning to the place where it now occupies practically the entire second floor of the Exposition Building. Last year 650 infants were entered for examination. It serves as a rallying ground for persons from all parts of the state interested in child welfare, and is responsible for the inspiration and development of scores of local child welfare movements.

Mr. Harry F. Ferguson has been appointed Acting Chief of the Division of Sanitary Engineering of the State Department of Public Health to succeed Paul Hansen, resigned. Mr. Hansen will engage in professional sanitary engineering in Chicago.

Mr. Baxter K. Richardson has been appointed Acting Chief of the Division of Surveys and Rural Hygiene of the State Department of Public Health to fill the place of Paul L. Skoog, who has been granted a year's leave of absence.

Dr. Thomas G. Hull has been appointed Acting Chief of the Division of Diagnostic Laboratories of the State Department of Public Health to succeed Martin DuPray, who retired from public service to conduct a private diagnostic laboratory.

✚

Maine.—Dr. George Holden Coombs of Waldoboro, has been appointed Director of the Division of Venereal Disease in place of Dr. H. E. Hitchcock, resigned. The division is maintained jointly by the State Department of Health and the U. S. Public Health Service and has been in existence about two years.

The courts in Maine have held the fly to be a nuisance. An opinion given by Justice Spear of the Maine Supreme Court affirms this. A guest at a hotel left with his family on account of the flies which infested the dining room near his table, thereby breaking a two weeks' contract. The hotel proprietor sued him and recovered, but on an appeal to the higher court, Justice Spear rendered an opinion and granted a new trial. The keynote of the opinion is contained in this quotation from it:

"The real issue involves but a single question of fact; was the defendant justified in leaving the hotel on account of the fault of the plaintiff in allowing flies to collect at the defendant's table in such numbers as to become insanitary and repulsive? We think he was. It is a matter of common knowledge that the house fly has come to be regarded by enlightened understanding, not only as one of the most annoying and repulsive of insects, but as one of the most dangerous in its capacity to gather, carry and disseminate the germs of disease. He is the meanest of all scavengers. He delights in reveling in all kinds of filth. Of

every vermin, he is above all others the least able to prove an alibi when charged with having been in touch with every kind of corruption and with having been contaminated with the germs thereof. The danger with which his presence is fraught is a matter of common knowledge and hence of judicial notice."

✣

Michigan.—The ranking of Michigan counties and cities as to safety for babies has brought to the State Health Department many questions about the relative healthfulness of rural and urban districts. Health Commissioner R. M. Olin has issued some comparisons which show that last year many rural districts had a higher infant death rate than some large cities. In six counties babies born in larger cities had a better chance to live than in rural and semi-urban parts of the counties. The rates here given are deaths per thousand births in 1919:

Wayne County—Detroit, 98; rural, 121.

Jackson County—Jackson, 102; rural, 102.

Alpena County—Alpena, 125; rural, 172.

Gogebic County—Ironwood, 105; rural, 113.

Manistee County—Manistee, 60; rural, 94.

Grand Traverse County—Traverse City, 65; rural, 109.

In some other counties the cities had unenviable records compared with surrounding rural districts:

Ingham County—Lansing, 130; rural, 64.

Kent County—Grand Rapids, 84; rural, 68.

Bay County—Bay City, 101; rural, 45.

Genesee County—Flint, 110; rural, 88.

Delta County—Escanaba, 97; rural, 76.

Ishpeming County — Marquette, 114; rural, 85.

Menominee County — Menominee, 99; rural, 81.

St. Clair County—Port Huron, 132; rural, 98.

Chippewa County—Sault Ste. Marie, 96; rural, 76.

"Our purpose in issuing these facts," said Commissioner Olin, "is to remind parents and health officers throughout all sections of Michigan that babies can be saved in these most dangerous weeks by steps easily within reach."

Minnesota.—Dr. Hibbert W. Hill has resigned from his position as Executive Secretary of the Minnesota Public Health Association to become Director of the Institute of Public Health of the Western University, London, Ont. He began his health work in Minnesota as Director of the Division of Epidemiology for the Minnesota State Board of Health, and in 1914 was made Secretary of the Public Health Association where he has been till now with the exception of two years during the war in which he was Health Officer of the first (Canadian) Military District, with the rank of captain. His work in Minnesota included the organization of the 87 county health associations, a health crusade and the issue of publications reaching 13,500 persons every week.

✣

New Jersey.—A conference of the physicians conducting the 15 free venereal disease clinics in the state was called by the N. J. Bureau of Venereal Disease Control at the Newark City Dispensary on July 19th. The eleven clinicians, who were able to attend spent half an hour inspecting the gonorrhea clinic for men which was under way at the time. The number of patients who attend this clinic was so great that it was necessary to work out a plan for simultaneous treatments in order that all could be taken care of within the time limits adopted for the clinic. Dr. C. R. O'Crowley, in charge, explained the method of keeping records and pointed out the duty of each physician. Four physicians attend every clinic; the first takes the history and diagnoses new cases; the second examines and treats the acute cases; the third treats the chronic cases; and the fourth treats post-operative and special conditions. The physicians change positions every third month, so that during the course of the year, each physician gains experience in all phases of the treatment.

After completing the examination and record each physician takes his patient to an adjoining room, which is unusually well equipped for the administration of the approved treatments for gonorrhea, and here the indicated treatment is administered with the aid of orderlies and nurses. Cystoscopic examinations are made at

another hour, each physician attending in turn. The syphilis clinics are conducted on other days and in other rooms; and in both clinics the sexes are separated. At the close of this inspection, the clinicians met in the conference rooms of the Dispensary, where Dr. O'Crowley gave a synopsis of the treatment of gonorrhea, advocating the use of freshly made Argyrol solution rather than permanganate or silver salts; he stressed the danger of instrumentation in the early stages of acute gonorrhea. This synopsis was followed by a paper, "Experience in the Treatment of Syphilis at the Camden Clinic," by Dr. A. H. Lippincott, who dwelt upon the necessity for social workers in inducing proper attendance at the clinic.

The New Jersey Child Hygiene Bureau has opened two new stations, one at Lambertville and the other at Frenchtown, the latter to be the center of work to include two adjoining towns. The program will include school hygiene.

Child Hygiene nurses in the New Jersey State Department of Health are now receiving a minimum salary of $1,200 annually with a maximum for higher positions up to $2400 a year, which places New Jersey above or at least on an equal plane with other state departments of health.

The State Child Hygiene Bureau under the direction of Dr. Julius Levy, conducts 61 Baby Keep-Well Stations throughout the entire state and as soon as additional nurses are obtained, the work will be extended to the several additional communities from whom requests have been received to have nurses carry on this work.

✚

New Mexico.—Dr. R. L. Bradley has been appointed Health Officer of Roswell.

An outbreak of typhoid fever in Roswell was traced, by Dr. G. S. Luckett, Chief of the Division of Preventable Diseases, State Health Department, to a contaminated milk supply. A carrier of two years' standing was found to be milking at the dairy from which 21 cases received milk or ice cream.

San Marcial owes important sanitary improvements to an inundation of the town by the Rio Grande. Under the charge of Mr. H. F. Gray, sanitary engineer of the State Board of Health, extensive drainage operations were undertaken and a system for the sanitary disposal of excreta installed. The State Board provided for the drainage from an emergency fund, while the citizens of the town furnished the money for the other improvements.

✚

New York.—By recent action of the Public Health Council botulism, as well as lethargica encephalitis, is added to the list of reportable diseases. A complete record of the amended regulations is to be found in the Health Officers' Bulletin for June. The Council has added to the qualifications required of midwives who apply for licenses that there be given evidence of cleanliness in their homes.

One of the very serious difficulties arising from the delays in transportation has been the fact that the chemicals necessary for the purification of water have been unobtainable. The situation affects at least 115 municipalities in the state, which are entirely dependent on chemicals for the purity of their water. The State Board of Health has taken up the matter both by treating with the railways and the U. S. Interstate Commission and also by informing the municipalities how best to proceed in the emergency, and what to do in order to secure more prompt delivery of the merchandise.

Among the results of health week recently conducted at Granville, no less than five persons with tuberculosis were discovered and cared for. One of the lectures bore upon the subject of pasteurization of milk, and in consequence pasteurized milk is now being delivered for the first time in the town.

✚

North Carolina.—The campaign against malaria in this state has evolved most interesting features. One of the most popular of these was the contest in which a prize of $50 was awarded for the best essay on the disease by a school child. The idea was suggested by the North Carolina Landowners' Association, which offered $25, and this was supplemented by an equal sum given by Dr. Clarence Poe, editor of the *Progressive Farmer*. The State Board of Health assisted by making the contest a part of the general educational plan, and the success in this is evidenced by the fact that the school children of 36 counties

were represented in the essays. The prize was awarded to Miss Rachel Grimsley of Jacksonville, Onslow county. A young man, Bernard McDuffie, was in the second place.

The State Board regards the contest as one of the most valuable pieces of educational work that it has accomplished. It extended over several months, maintaining interest and attention during this time, and incidentally about 100,000 pieces of literature were distributed. The counties offered prizes as well as the state one. The requirements made it necessary for the children to make a study of the conditions that induce and affect malaria, and the parents were, of course, drawn into the study. The contest touched those parts of the state that are most affected by malaria, and cannot fail to have important beneficial results.

Anti-malaria work is conducted in North Carolina by the State Board of Health in coöperation with the U. S. Public Health Service in a number of districts, among them, Goldsboro, Tarboro, Farmington and Wilmington.

The present season has been characterized in North Carolina by a number of sharp outbreaks of typhoid fever. Examples of three, five and even six cases in the same family are used to impress on the people the infectiousness of the disease, illustrating how whole families may contract the malady. The general situation in the state is very much improved, the mortality being in 1919 only about one-half that of 1914. Vaccination campaigns are now under way in eight or ten counties.

North Carolina is conducting a very active campaign against venereal disease under the direction of Dr. Millard Knowlton, Regional Consultant, U. S. P. H. S. The physicians are given no opportunity to remain ignorant of the laws and regulations. Copious literature is circulated among them with very definite instructions, and the responsibilities of the doctor are clearly set forth. In this state the decision as to whether a case shall be reported by name and address rests with the physician. He is the one who can best determine whether the case is one which should be cared for by the health authorities. By this procedure the authorities are relieved of the necessity of investigating every case, a duty that would follow if all cases were reported by name.

✚

Ohio.—The Ohio Society for the Prevention of Tuberculosis at its meeting in May assumed a broader field, changed its name to Ohio Public Health Association, and amended its charter and elected officers, among whom are: President, Dr. C. B. Bliss of Sandusky; Treasurer, Mr. Theo. S. Huntington of Columbus, and Secretary, Dr. Robert G. Paterson of Columbus. One of the objects of the organized association is to foster the establishment of local public health leagues in each county in the state and local anti-tuberculosis societies upon which to build these leagues. Summit County Red Cross Chapter was the first to affiliate and it will be the agent of the state association in its county. The Dayton society met in July to discuss the formation of a Montgomery County Public Health League, the subject being still under consideration to be acted upon in September.

The Association has issued a hand book giving the details of its organization, has secured a professional publicity and educational director of experience, Mr. E. W. Baird of Columbus, and has under way a modern health crusade and the Christmas stamp campaign.

As a part of a Peace Time Program the Cincinnati Chapter, American Red Cross, is establishing a permanent Bureau of Information. This Bureau is to be a collection of material on social work, health information, psychiatric service, disaster relief, community service and reference files of Red Cross activities.

✚

Tennessee.—A course in Public Health Nursing has been established at George Peabody College, Nashville. Three months will be devoted to work on the campus, which includes economic subjects, community and individual problems, rural institutions, home management and practical English for public workers. Theoretical work will be followed by three months' field work in the city of Nashville and rural communities in various parts of the state.

Virginia.—Dental work for children is now being prosecuted in various parts of the state. No less than five counties have men equipped for the work, some with portable outfits so as to reach the more isolated districts, while in others central clinics have been established to which the children come in large numbers. Arlington and Fairfax counties have whole-time dentists who will continue the work throughout the year, the former making a charge of $1.50 for each child. These clinics have penetrated even into the country of the mountain people, to the intense delight of the health workers who have hitherto been without such aid. Meanwhile a dental survey is in progress under Dr. E. J. Applewhite of Newport News, and by the time the schools open in the fall the program will be pretty well determined. This in the end is intended to include every school child in the state. For the benefit of teachers, lectures in oral hygiene have been given throughout the state at the summer schools by a unit of the U. S. Public Health Service, headed by Lieutenant-Colonel Harry B. Butler, D. R. C.

Forty-four cases of tuberculosis in a clinic that examined 275 persons, 154 of whom were declared to be healthy, is the record for Augusta county recently. Of the tuberculates, 23 were active cases, two of these advanced, with 21 arrested cases and six suspicious.

✚

Wisconsin.—That Racine, Wis., realizes the importance and value of public health work is evidenced by the coöperation of the City Council in granting appropriations to carry on this work and in otherwise strengthening and upholding the Health Department. The Council has just authorized the issuance of $130,000 in bonds for the erection of a hospital for the care of communicable diseases.

As a result of a vaccination campaign instituted last fall in Racine, when 8,500 school children were successfully vaccinated, there has not been a case of smallpox among school children for the past nine months. In every instance written consent of the parents of the children was first received.

✚

Philippines.—Acting Director of Health, Dr. Vincente de Jesus, has appointed a Leprosy Investigation Committee to meet at Manila from time to time on call of the Chairman thereof, for the purpose of undertaking investigations in connection with the treatment of leprosy, according to the latest developments of scientific research. The personnel of the committee is the following: Dr. José P. Bantug, Philippine Health Service, Chairman; Dr. H. W. Wade, University of the Philippines, Pathologist and Bureau of Science; Dr. Liborio Gomez, Bureau of Science, Bacteriologist; Dr. Daniel de la Paz, University of the Philippines, Pharmacologist; Dr. Granville A. Perkins, Bureau of Science, Chemist, and Dr. Proceso Gabriel, Philippine Health Service, and Dr. Luis Guerrero, University of the Philippines, Clinicians.

RELIEF FOR AUSTRIAN PHYSICIANS

In an appeal for relief funds, the American Relief Committee for Sufferers in Austria (261 Madison Ave., New York City) makes a special plea in favor of Austrian physicians. Vienna, whose great schools of medicine and surgery have for three centuries attracted the students of all nations, is today battling for its very existence. Physicians are among those who suffer acutely from the great scarcity of food. Their incomes have been reduced to almost nothing by the depreciation of money, they can not do manual labor and the scanty government ration is wholly inadequate. They are obliged to sink their pride and appeal for help. At the same time they need strength to combat the ills of the people, an undernourished population. The committee guarantees that every dollar contributed will be given to the physicians, administration costs being defrayed from other funds.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Francis H. Slack, M. D., and Mr. James M. Strang.

Method for fixing films of Human Blood Cells during the ameboid movement of Leucocytes and Thrombocytes.—A watch glass covered by a second watch glass, on the inside of which is laid a filter paper moistened with water, is placed in an incubator at a temperature of 38° C. On a well-cleaned cover slip is placed a drop of Deetjen's solution (0.75 percent sodium chloride, 0.5 percent magnesium sulphate, 0.01 percent sodium bicarbonate), previously heated to body temperature, to which is added a very small drop of blood from the finger. This cover slip is placed in the space between the watch glasses which is kept moist by the wet filter paper. After about 20 minutes in the incubator, the covering watch glass is quickly replaced by another one, on the inside of which a filter paper is placed moistened with a solution of 40 percent formaldehyde. In this manner the leucocytes and thrombocytes which have continued their ameboid movement while in the damp space are quickly fixed at body temperature. After about half an hour the cover slip is taken out of the incubator and the mixture of Deetjen's solution and blood is carefully run off so that part of the red blood corpuscles, leucocytes, and thrombocytes are left adhering to the cover slip. The film can now be stained and treated further in the usual way. The best results are obtained if the film is stained while still wet. —M. A. Van Henverden, M. D., *Jour. Expt. Med.*, Aug. 1, 1920.

✚

Importance of Blood Groups in Complement Fixation Reactions.—Erythrocytes should always be obtained from a Group IV individual (Moss' classification) when preparing cell suspensions for complement fixation reactions in which an anti-human hemolytic system is used, since Group IV erythrocytes are never acted upon by the isohemolysins present in human serum nor by the natural anti-human hemolysin present. Human serums may contain hemolysins for Groups I, II or III erythrocytes. An additional source of error, when human cell suspensions are made up at random, is introduced by the presence of anti-human hemolysin in guinea-pig serum selective for Group I and Group II human cells.—William C. Williams, *Jour. Expt. Med.*, Aug. 1, 1920.

✚

Use of Tissue in Broth in the Production of Diphtheria toxin.—The authors draw the following conclusions: Diphtheria toxin can be produced regularly in broth to which pieces of sterile guinea-pig liver have been added. The medium must be inoculated immediately after the addition of the tissue. Broth prepared with certain American peptones gives satisfactory results when enriched with liver tissue. The most favorable initial reaction of the broth ranges from plus 0.3% to neutral to phenolphthalein. The broth at the time of testing should have a reaction ranging from P_H 8.0 to P_H 8.3, although a favorable reaction is not the only essential for toxin production. The addition of liver tissue reduces the necessary period of incubation. Strains of *B. diphtheriæ* other than Park-Williams No. 8 have produced a toxin of high potency by this method.—G. H. Robinson and P. D. Meader, *Jour. Inf. Dis.*, Aug., 1920.

✚

Investigations and Experiences with the Sachs-Georgi Reaction for the Serum Diagnosis of Syphilis.—The great majority of cases examined by the Sachs-Georgi test give results concordant with those of the Wassermann. In 154 examinations, the author had divergent results only 15 times. In another set of 99 serums which were negative by the Wassermann, five were positive by flocculation. Three of these five were from patients having high fever from causes other than syphilis, in the other two syphilis was not excluded. The reaction is therefore held to be non-specific in certain cases of fever.—Munster. *Munchen. Med. Woch.* 1919, May 19, 505. *Abst. Bull. Inst. Past.* 1920, 18, 260.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Physiological Cost of Muscular Work.—Waller demonstrated a method and apparatus for measuring the physiological cost of the various forms of mechanical work as done by a dock laborer, a painter, a carpenter and a tailor. The method consisted in measuring the CO_2 expired by the workers. The apparatus consists of three parts: (1) A collecting bag, with valve mouthpiece and tape to receive the expired air of the subject for, say, a minute or half a minute; (2) an analyser, to measure directly the percentage of CO_2 present in the expired air; and (3) a spirometer, to measure its volume in litres. The calorific value per cc. CO_2 is taken as equal to 5.55 calories. Waller demonstrated that at rest a man expires 60 calories per hour, while at work (walking at 3½ miles an hour) he expires 320 calories. The small value (60 calories per hour) represents the cost of bare life without work—that is, the basal cost. The procedure for tradesmen was to collect the expired air for a period of one minute every hour from each man during the six days of work. The amount of CO_2 and its calorific value were then computed. The physiological cost of work per hour in four workmen varied from 84 to 127 calories per hour; that for 4 compositors on the *British Medical Journal* being 101 to 105 calories per hour.—A. D. Waller, *Brit. Med. Jour.*, No. 3094, April 17, 1920, 537-538.

✣

Eyesight of Miners.—The (British) Illuminating and Engineering Society arranged a meeting on February 24th on the subject of eyesight of miners. Dr. T. Lister Llewellyn stated that lighting values in mines are extremely low owing to two factors: (1) The insufficiency of the light generated, and (2) the very feeble illumination that enters the eye of the miner owing to the high proportion of the light absorbed by the blackness of the coal face. In the safety lamp mines only one-fiftieth of the value of the illuminant reaches the coal face, and only one-five-hundredth part, the eye of the miner. The electric-battery head-lamp proved to be the best in such mines. The economic loss to the country from miner's nystagmus is at least £1,000,000 per annum. Dr. H. S. Elworthy believed that much eye fatigue is due to the absence of color relief in the coal mine. Whitewashing the posts and roofs of the workings would give much relief. A rich yellow light with a tinge of red is the most comfortable light. Blue light which occurs in bad air and in certain mines where the coal face has a bluish tint is irritating and more nystagmus is found in such mines. Dr. J. S. Haldane doubted that the quality of the air of such mines had much to do with nystagmus. He considered the disease to be local neurasthenia induced by the fatigue of trying to see in darkness.

Mr. Armitage representing a Yorkshire colliery, stated that his company had installed 10,000 electric lamps of special type which has been followed by (1) reduction of nystagmus, (2) fewer accidents, and (3) quicker movement of the men. The whole cost of their use worked out at 1.29d. (2½ cents) per shift. Dr. F. Shufflebotham considered the affliction a general nervous disorder and not an eye disease. Mr. Elwood commented on the fact that there had been a great increase in the disease since the war. A number of other speakers thought that some other factor than light alone was the cause. Mr. Butler pointed out that it took some 10 to 25 years for the disease to develop and Dr. Hartford stated that miners who were free from the disease on enlistment had subsequently, under the stress of war, developed the symptoms, so that there was evidence of latency. Others substantiated this statement. At the conclusion Dr. Llewellyn called attention to an experiment which had been carried out before their eyes: during the meeting their oil lamps had burned out but the electric lamps were going as well as ever.—*Brit. Med. Jour.*, No. 3088, March 6, 1920, 327-328.

Does It Pay to Employ an Industrial Nurse and What Should Be Her Qualifications?—"Yes, because:

1. She gives first aid in case of injury, thereby preventing infection and shortening the period of disability.

2. She cares for minor ailments, thereby enabling the employees to continue work.

3. She is on the alert to prevent the introduction and spread of contagious diseases through the plant.

4. She prevents illness by giving instruction in ways of keeping well.

5. She advises regarding correction of physical defects.

6. She visits and arranges for the care of those absent because of illness, thereby enabling an earlier return to work. She helps in case of family illness or trouble, thereby relieving the mind of the worried employee and enabling him to give his undivided attention to his work.

7. She teaches the rules of hygiene and sanitation. She advocates suitable precautions in the dangerous trades.

8. She is at all times a friend in need and interprets to the employee the plans of the employer for the establishment of various forms of industrial betterment."

"She should have a personality which gains and holds confidence, quick and sound judgment, tact and optimism. In addition to being a registered nurse, she should, if possible, have had a post-graduate course in Public Health Nursing. Such a course insures knowledge of the preventive side of her work, which counts so largely in keeping employees well and on their jobs."—*Modern Hospital*, February, 1920, p. 160.

✚

Conditions Affecting Health in the Millinery Industry.—This report is a fairly complete discussion covering the materials and activities entering into millinery manufacture including a list of poisonous substances, kinds of machinery, kinds of goods and the reports of industrial inspectors made in connection with a sanitary overhauling of millinery establishments in New York City. Among poisons used are to be noted wood alcohol, arsenic and white lead, as well as benzine, benzol, turpentine, anilin dyes and anilin. The great irregularity of hours of employment, the surreptitious employment of children, and the large number of foreigners are special features for health consideration.—Hubbard and Kefauver, *Bulletin of New York City Dept. of Health*, April, 1920, Vol. 10, No. 4, 82-97.

✚

Tuberculosis From an Industrial Viewpoint.—Dr. Brownlee divides cases of tuberculosis into three classes: The young adult (Y. A.), the middle-aged (M. A.), and the old-aged (O. A.). The Y. A. and O. A. cases are acute while the M. A.'s are chronic and this group is subject to environmental conditions and is eminently curable. Y. A. and O. A. types are far more difficult propositions. Y. A. phthisis is principally a racial and family disability and is affected by movements of population whereas M. A. phthisis being a hygienic and physical strain disease is principally affected by hygienic conditions of work and feeding. The M. A. group is essentially one of individual resistance to environmental conditions and hence can be controlled by controlling those conditions.—Henry A. Ellis, *Lancet*, No. 5053, July 3, 1920, 44-45.

✚

Chronic Zinc Poisoning; Does It Exist?—Seiffert, who studied zinc smelting, concludes that lead is not so important among zinc smelterers as a poison as is commonly supposed. The damage due to zinc is underestimated. Zinc dust is swallowed, passes into the gastro-intestinal tract and gradually produces illness. The worst forms are the dusts of zinc blende (ZnS) and calamine ($ZnCO_3$) which contain large amounts of $ZnSO_4$ and $ZnCO_3$. The symptoms are attacks of colic, vomiting and diarrhea. Chronic zinc poisoning in these workmen cannot be denied, in fact is the chief cause of occupational disease in that industry. Lead is only of secondary interest. (The abstractor who has studied this question of zinc poisoning rather extensively believes that such symptoms are hardly to be construed as chronic constitutional zinc poisoning but that they are probably due to the local and irritative effects of continual ingestion of zinc salts perhaps changed to zinc chloride in the stomach, with the usual irritative or semi-caustic local action.)—Seiffert, *Off. Gsdhtsplge*, III, 44-67, 85-98, 116-143.

Heat-Stroke. Under the title of "Heat Hyperpyrexia" two important papers have been published,—the clinical aspect by Dr. W. H. Willcox, lately consulting physician to the Mesopotamian Expeditionary Force, and the physiological aspect by Leonard Hill, Director of the Department of Applied Physiology, Medical Research Committee, with some valuable comments later by K. G. Hearne and Maj.-Gen. (Ret.) Wm. Pike. When temperature reached 110° F. in the shade heat-stroke made its appearance and the number of cases increased with increase in temperature. A temperature of 120° F., in spite of all precaution induced a large number of heat-stroke cases. The effect of heat was undoubtedly cumulative in action since it was the succession of several hot days which was dangerous and a man who had been exposed might develop the attack in the night or early morning after the atmospheric temperature had fallen. High humidity produced more cases. Heat-stroke occurred especially in men past 40 years of age in whom it was also more severe. Stagnation of air, the degrees of which were estimated by Dr. Hill's kata-thermometer, was directly responsible as a factor. Failing to drink enough water, imbibing of alcohol, exertion during the heat of the day, absence of a protective helmet or of umbrellas, as well as predisposing diseases with fevers such as malaria, were also direct factors. There are four types of disease from exposure to heat: (1) Heat exhaustion (mild type) with weakness, fainting rapid pulse, slight fever or subnormal temperature and small mortality, (2) gastric type with suffused face, restlessness, marked nausea and occasional vomiting and absent mouth temperature. The pulse will be normal for several days, but the rectal temperature often shows a rise of about two degrees; the knee-jerks were absent. This is a dangerous type and after several days suddenly develops fatal heat hyperpyrexia. (3) Choleraic or gastro-intestinal type. Here the onset is sudden with collapse, slight fever, vomiting, diarrhea, cramps in abdomen and extremeties; mortality is high. (4) Heat hyperpyrexia. This is the common type (72½ of the severe cases). The onset is often sudden with temperature reaching 110° F. and with rapid loss of consciousness; the onset may, however, be more gradual with frequent urination, a characteristic early symptom after which the temperature mounts rapidly. The treatment for the first type requires rest, keeping cool and aperient medicine. The gastric type requires free purgation, great care in protection from heat, large doses of sodium bicarbonate with cold rectal enemas of the same salt. The choleraic type requires normal saline subcutaneously the cardiac stimulants in addition to the protection from heat. The fourth type demands immediate stripping of the patient and constant application of a spray of cold water or constant rubbing of ice until the rectal temperature comes down to 102° F., the patient being under a fan during the process. Convulsions were treated by venesection, 10 to 20 ounces of blood being withdrawn. Respiratory failure was treated by artificial respiration and oxygen. Morphine and chloroform (inhalations) were inferior to venesection. Leonard Hill declares that so long as the body is exposed to cooling breeze, the exposure to sun cannot produce sun-stroke. The heating effect of protein-rich food must be avoided. A wet-bulb temperature of 80° F. may be the limit for muscular work. Breathing hot air may produce exhaustion even when the skin is exposed to a cool atmosphere. So long as sweating remains active and there is a breeze there is no danger of heat-stroke. Heavy clothing on soldiers marching in close column on a calm day are prime factors. One treatment to apply immediately when sweating ceases in a man, is to start artificial sweating by means of a water spray and fan. Persons about to suffer heat-stroke can be picked out by their dry skins. Those who cease to sweat complain of any breeze present. Maj.-Gen. Miles says that two points always precede an attack of heat hyperpyrexia, namely, frequency of urination and absence of sweating. These facts were pointed out in his lecture 40 years ago by Prof. McLean at Netley.—*Brit. Med. Jr.*, No. 3090, March 20, 1920, 392-397, and No. 3093, April 10, 1920, 521.

SPECIAL NOTICE

Public Health Authorities

Bubonic Plague Is Carried by Rats

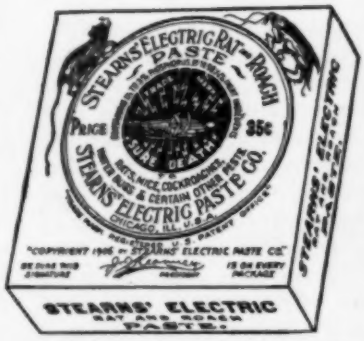
—Kill the Rats!

An ounce of prevention may save many lives from the dread scourge.

You owe it to your family and community to co-operate in the extermination of rats and disease-carrying pests. PREVENT QUARANTINE! Protect your premises today—tonight—against these dangerous pests by using STEARNS' PASTE. It's quick, sure, and saves time, money and effort.

Just put STEARNS' PASTE, tonight, on any food the pests eat. Tomorrow you should find their dead bodies *out in the open.*

STEARNS' PASTE makes them hunt fresh air and water.



Get the larger package for economy. Ask your neighbors to co-operate.
TWO SIZES:
35c and $1.50.

Ready for use *Better than traps*
"Money back if it fails"

Always use

STEARNS' ELECTRIC PASTE

When an Exterminator is wanted

2 oz. or 35c size packed 12 dozen in case
15 " " $1.50 " " 1 " " "

In each package is a circular of directions in 15 languages
U. S. Government Authorities have used the goods successfully
ORDER FROM wholesale or retail druggists anywhere

STEARNS' ELECTRIC PASTE CO., CHICAGO, ILL. U. S. A.

Established 1878 **Incorporated 1892**